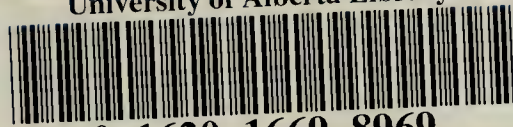


University of Alberta Library



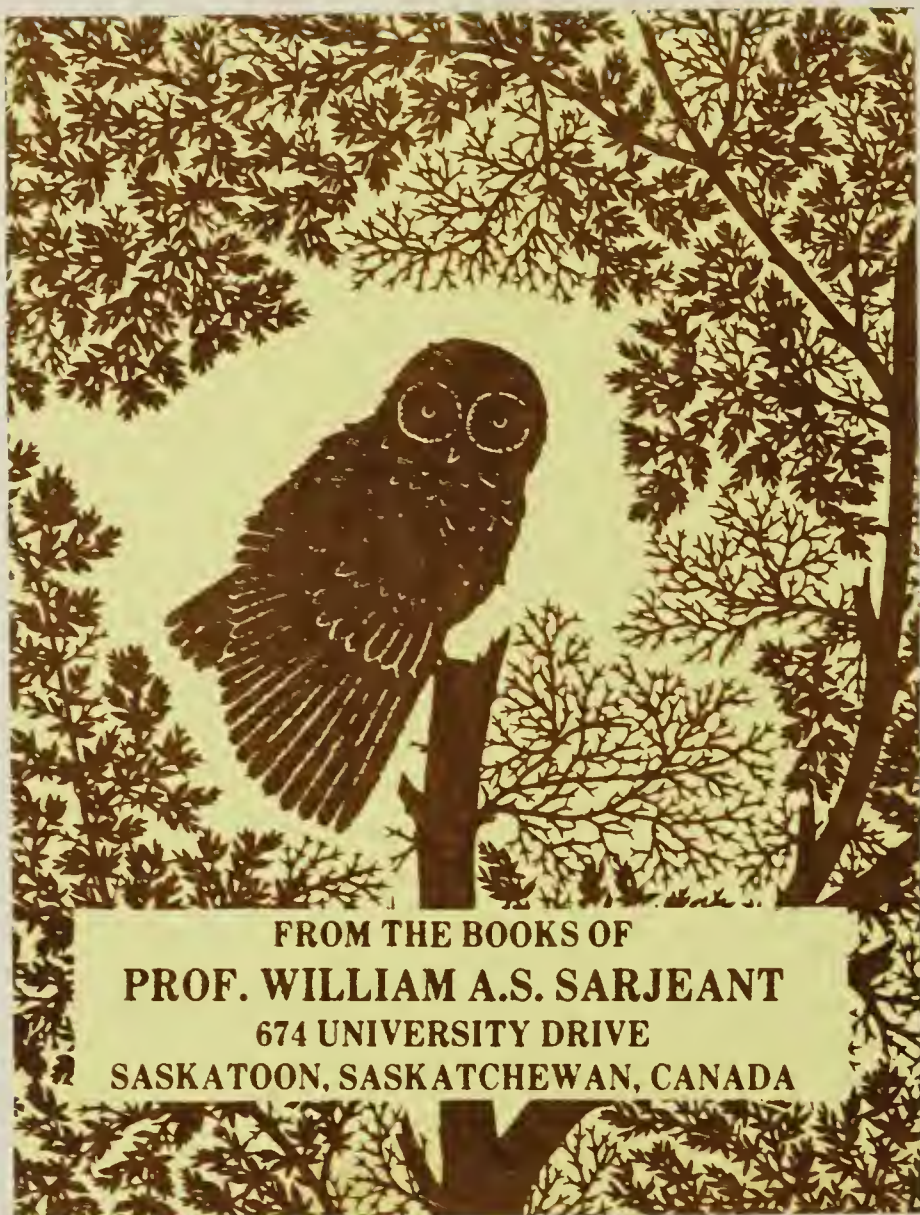
0 1620 1669 8969

A32503



W4888





FROM THE BOOKS OF  
**PROF. WILLIAM A.S. SARJEANT**  
674 UNIVERSITY DRIVE  
SASKATOON, SASKATCHEWAN, CANADA

William A. S. Sargent



Digitized by the Internet Archive  
in 2019 with funding from  
University of Alberta Libraries

<https://archive.org/details/bluejay311sask>



# blue jay

Mar. 1973





PROF. WILLIAM A. S. SARJEANT  
674 UNIVERSITY DRIVE  
SASKATOON, SASKATCHEWAN, CANADA

# blue jay

Mar. 1973

Volume 31, No. 1  
Pages 1 - 64

## A JOURNAL OF NATURAL HISTORY AND CONSERVATION FOR SASKATCHEWAN AND ADJACENT REGIONS

Editor: Bernard Gollop

Assistant Editors: Bob Nero, Gary Seib, Vern Harms,  
Merv Atton, Stan Rowe and Dick Fyfe

Circulation: Lorne Scott

Editorial Assistants: Sandy Shaver, Muriel Galloway,  
Molly Denson, Bill Richards

**All items for publication should be addressed to  
J. B. GOLLOP, 2202 York Ave., SASKATOON, SASK., S7J 1J1.  
Deadline for material for the June issue is April 2, 1973.**

### REPRINTS

Requests for quantities of reprints of any article in the *Blue Jay* should be sent to Midwest Litho Ltd., 709 43rd St. East, Saskatoon, Sask., within one month of publication. Contributors wishing a few extra copies of the current *Blue Jay* may get them at cost. Requests for these should be made to the Editor when material is submitted for publication.

Any material printed for the first in the *Blue Jay* may be reproduced without permission. Credit lines will be appreciated. Use of photographs requires written permission from the photographer.



# BLUE JAY QUESTIONNAIRE

1. Are you or someone in your household receiving the *Blue Jay* in 1973: YES ☐ NO ☐

2. Please check the subjects below that you want to read more about in the *Blue Jay*:

|  | Life<br>history,<br>ecology | Local<br>lists | Iden-<br>tifi-<br>cation |            | Life<br>history,<br>ecology | Local<br>lists | Iden-<br>tifi-<br>cation |
|--|-----------------------------|----------------|--------------------------|------------|-----------------------------|----------------|--------------------------|
| FLOWERS, TREES                                   | _____                       | _____          | _____                    | AMPHIBIANS | _____                       | _____          | _____                    |
| LOWER PLANTS                                     | _____                       | _____          | _____                    | REPTILES   | _____                       | _____          | _____                    |
| BUTTERFLIES                                      | _____                       | _____          | _____                    | FISH       | _____                       | _____          | _____                    |
| OTHER INSECTS                                    | _____                       | _____          | _____                    | BIRDS      | _____                       | _____          | _____                    |
| OTHER INVER-<br>TEBRATES                         | _____                       | _____          | _____                    | MAMMALS    | _____                       | _____          | _____                    |
| GEOLOGY _____ PALEONTOLOGY _____ ASTRONOMY _____ |                             |                |                          |            |                             |                |                          |
| PHOTOGRAPHY _____ CONSERVATION _____             |                             |                |                          |            |                             |                |                          |
| ENVIRONMENTAL PROBLEMS _____ OTHER _____         |                             |                |                          |            |                             |                |                          |

3. Which three articles did you like most of the last one or two issues of the *Blue Jay* and why?

a) Title \_\_\_\_\_  
Why? \_\_\_\_\_

b) Title \_\_\_\_\_  
Why? \_\_\_\_\_

c) Title \_\_\_\_\_  
Why? \_\_\_\_\_

4. So that we may better appreciate who our readers, present and potential, are, will you please tell us your

OCCUPATION \_\_\_\_\_ AGE \_\_\_\_\_

WHERE YOU LIVE (place and province) \_\_\_\_\_

5. What comments, suggestions, praise and criticism do you have about the *Blue Jay*? (use back of page)

Thank you very much again for your cooperation. Please try to get another person to fill out the the other copy of the questionnaire — by APRIL 2, 1973.







# BLUE JAY

Vol. 31, No. 1

Pages 1 - 64

MARCH, 1973

## TABLE OF CONTENTS

|   |    |
|---|----|
| A TRIBUTE TO GEORGE F. LEDINGHAM. <i>J. A. Wedgwood</i> .....   | 3  |
| THEN AND NOW. <i>Marion Nixon</i> . ....  | 4  |
| IN REMEMBRANCE: MARION NIXON (1902-1972). <i>Rose McLaughlin</i> . ....   | 6  |
| MARION NIXON MEMORIAL .....   | 8  |
| R. D. SYMONS .....  | 8  |
| JOHN JOSEPH JANZ, 1919-1972. <i>D. R. M. Hatch</i> . ....   | 9  |
| A SHORT-FACED BEAR FROM ICE AGE DEPOSITS AT LEBRET,<br>SASKATCHEWAN. <i>C. R. Harington</i> . ....                    | 11 |
| 31st ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT.<br><i>Mary I. Houston</i> .....  | 20 |
| COMMON GOLDENEYES AND THE EMMA LAKE NEST BOXES.<br><i>Maureen Rever and Richard S. Miller</i> .....                   | 27 |
| SUDDENLY IT'S SPRING. <i>Donald Keith</i> .....   | 31 |
| 1972 BEST YEAR YET FOR SASKATOON BLUEBIRD HOUSE<br>TRAIL. <i>David V. Houston</i> .....                               | 35 |
| NEST RECORDS .....  | 35 |
| BIRD WATCHING — INDOORS. <i>Thelma Pepper</i> .....   | 36 |
| FEEDING THE HUNGRY. <i>Laura Hoyte</i> .....  | 38 |
| COUGAR KITTENS REPORTED NEAR ANTLER, SASKATCHEWAN.<br><i>Tom White</i> .....  | 42 |
| RED FOXES MAKE A COMEBACK AFTER 30 YEARS.<br><i>Dick Dekker</i> .....   | 43 |
| SCIENTISTS DETER COYOTES WITH TOAD-TASTING SHEEP.<br><i>Conservation News</i> .....                                   | 45 |
| ADDITIONAL RECORDS OF THE BULL SNAKE FROM ALBERTA.<br><i>George B. Pendelbury</i> .....                               | 46 |
| NATURE LIBRARY: Recent Popular Titles In The Natural Sciences<br>At Saskatoon Public Library. <i>Diane Weir</i> ..... | 48 |
| “Birds of Moose Mountain, Saskatchewan.”<br>Reviewed by <i>Paul F. Springer</i> .....                                 | 49 |
| “Special Places — Canada's National Parks.”<br>Reviewed by <i>Martin K. McNicholl</i> .....                           | 50 |

|   |                        |
|---|------------------------|
| “Populations, Movements And Seasonal Distribution of Mergansers.”<br>Reviewed by <i>Phil Ould</i> .....                     | 51                     |
| LETTERS. Nature On Stamps. <i>Editor</i> .....  | 52                     |
| Can't Whooping Cranes Be Protected On Private Land?<br><i>Edith Gardiner</i> .....  | 53                     |
| To Walk In the Woods. <i>Roberta Smith</i> .....  | 53                     |
| Two Little Orphans. <i>Steven McFarlane</i> .....   | 54                     |
| PRESERVE ROAD ALLOWANCES. <i>Hugo Tiessen</i> .....   | 54                     |
| GREATER PRAIRIE CHICKEN AT LEADER, SASKATCHEWAN.<br><i>David R. M. Hatch</i> .....  | 55                     |
| OWL NOTES. <i>Evelyn Casson</i> .....   | 56                     |
| FIRST REPORT OF A GOLDEN-CROWNED SPARROW<br>AT CALGARY, ALBERTA. <i>Harold W. Pinel</i> and <i>Carol J. Robinson</i> .....  | 57                     |
| CAVE-NESTING TURKEY VULTURES OF THE SOUTH<br>SASKATCHEWAN. <i>Joe W. Schmidt</i> .....                                      | 58                     |
| A SIGHT RECORD OF THE FERRUGINOUS HAWK IN<br>BRITISH COLUMBIA. <i>Peter L. McLaren</i> and <i>Margaret A. McLaren</i> ..... | 59                     |
| A RECENT BLACK-FOOTED FERRET RECORD FOR<br>SOUTHERN ALBERTA. <i>Harold W. Pinel</i> .....                                   | 59                     |
| DOMESTIC CAT CATCHES A VARIETY OF WILDLIFE.<br><i>Dennis C. Joyes</i> .....   | 60                     |
| VARIATIONS IN FIREWEED AND BLUEBERRY.<br><i>Mrs. H. D. Bobier</i> .....   | 61                     |
| 30 YEARS AGO: THE SNOWS OF YESTERYEAR .....   | 61                     |
| LOOKING BACK. <i>Editor</i> .....   | 62                     |
| YOUR THREE DOLLARS' WORTH. <i>Bernard Gollop</i> .....  | 63                     |
| BLUE JAY QUESTIONNAIRE .....  | Insert in front and 64 |





## A TRIBUTE TO GEORGE F. LEDINGHAM

Upon returning the galley proofs for December's issue to the printer, George Ledingham retired as editor of the *Blue Jay*, after 16 of the journal's 30 years.

Sixty-four issues of this quarterly, what a tremendous amount of work! Yet George gave very full measure, seeing the printer, assisting someone with his first article, writing items himself, proof-reading, searching records for interesting editor's footnotes, interviewing people, and on and on. In addition to all this he wrote the editorials. He set a tough standard, and in his quiet persistent way encouraged others to meet it. More than a hobby, the *Blue Jay* was to him an avocation. George truly believes the *Blue Jay* is a positive force in the natural history field on the prairies, playing a role in developing a conservation conscience.

Over the years several members have helped with the *Blue Jay* in various ways — as assistant editors, writing assistants and at other chores. Like George, they are knowledgeable, capable and high-principled, and have their own views. Through their personal interest and with the influence of his purpose and dedication, they together sustained the journal's reputation.

As if all this work was not enough, his concern about conservation drew him into other Society activities. Frequently a member on committees and delegations pressing for nature preservation, he also participated in public hearings on parks and workshops on the environment. I am glad to note he is continuing to make a contribution.

A professor of biology at Regina Campus, Dr. Ledingham is a botanist, as many readers know. From the way he speaks, you realize he is happiest when on a field trip with a class of young people. Having talked with some of his students, I sensed that he has the rare ability to make them aware, not just of the plants, but of the whole, living plant community; he generates in them an understanding, a feel for the prairies he loves. At the Society's summer meet each June, you will invariably find him, in a group, two or three of whom will be on their knees looking at something, and the talk will be plants.

All these things came together in his editorials. For example, about his students, "As I heard their expressions of surprise when they saw a new sight, I often thought how much people miss when they do not take the trouble to look with an eye that really sees."

George was usually ahead of us, expressing concern for the environment, pointing to conservation problems. His first editorial, in 1956, mentioned the need for protection of hawks and owls in Saskatchewan — year-round protection finally became fact in 1971. In 1959, referring to DDT and 2,4-D he wrote, "As each new spray has come on the market people hurry to take advantage of its obvious benefits without giving due consideration to possible harmful effects" — substantial reversal of this situation came 11 years later. In 1961 an editorial asked, "Could we have a wildlife stamp, with proceeds to go only to the purchase of lands for wildlife, issued each year?" In 1969, Saskatchewan introduced provincial hunting licenses with receipts for wildlife habitat.

Under him the *Blue Jay* continued to inform us on a variety of natural history subjects, to be an organ where members advised others of interesting and unusual events in nature and to provide a useful reference for local records. The journal was this and more. Again turn to his very first issue for his editor's creed — today still his wish for the *Blue Jay* — "In a democracy, we cannot expect to have the problems of conservation and wildlife management solved intelligently without an informed public, and I therefore hope that the *Blue Jay* will be able to play a really effective role in conservation education."

He has our gratitude. Thank heavens there are George Ledinghams in this world.

J. A. WEDGWOOD

# THEN and NOW

BY the late MARION NIXON, Redvers, Sask.

(NOTE: the following notes have been edited from a long and sometimes not-easily-decipherable letter written after Aunt Marion had her first stroke; it was submitted to the *Blue Jay* May 25, 1969, and set aside for editing — C. S. Houston).

My nephew, Dr. Stuart Houston, has been nagging me to write a comparison between wildlife “now” and “then” — which could be taken two ways. “Then” might be my childhood at Tyvan, Sask., where the trees were saplings planted in the new shelterbelts and tiny willows beginning to rim the sloughs. Or, “then” might be 1921-23 when I first came to this semi-parkland around Wauchope and Redvers in the extreme southeast corner of Saskatchewan, at the time when the first poplar “bluffs” were beginning to appear and White-tailed Deer were just moving into the area.

As a child in the prairie area at Tyvan, I knew only ground-nesting birds. The Upland Plover decreased markedly in numbers soon after settlement, and the Willets and Marbled Godwits also declined.

We had a slough in the pasture that was a rallying place for ducks in the spring. The surface would be crowded for a few days. We also had large quantities of Red-winged Blackbirds, Brewer's Blackbirds and Cowbirds and the cattail-ringed sloughs were populated by a few Yellow-headed Blackbirds, Coots and Bitterns.

At Wauchope, we had a shallow run-off slough between the house and the barn where I could watch the following pairs nearly every spring: 2 Mallard, 1 Pintail, 1 Shoveler, 1 American Widgeon, 2 or 3 Blue-winged Teal and several Coots. In the 1940's we even had Muskrats tunnelling in its banks. When the slough began to dry, most summers, the ducks were attracted to a creek just a few rods beyond a little height of land.

At Tyvan, in the years before 1920, we used to see Pinnated Grouse (Greater Prairie Chicken). I have never seen one at Wauchope, although Sharp-tailed Grouse are common and, until we moved, we had several dancing grounds on our farm, one just a quarter mile from our kitchen window. Neither the Ruffed Grouse nor the Ring-necked Pheasant were to be seen in my youth at Tyvan nor in the early years at Wauchope, but now pheasants walk up the front drive of my son-in-law's farm just west of Redvers, and a Ruffed Grouse eats poplar buds a few yards from my window. Gray Partridge arrived in 1927 or 1928, some years after I moved to Wauchope.

Sandhill Cranes were once common in migration, equally at Tyvan and Wauchope. My husband reports that one pair nested near Wauchope in 1906 or 1907. I remember counting three Whooping Cranes in a large flock of Sandhills, over Osage, (the village next to Tyvan,) where I was teaching in the spring of 1921. These were the only white cranes I saw, and since then the flocks of Sandhills have become smaller and fewer.

One bird that was quite common both at Tyvan and Wauchope in earlier years was the Wilson's Snipe, with its distinctive winnowing flight. Also the Nighthawk's boom was common at both places. Now we rarely hear either.

Here at Redvers and Wauchope we have Bobolinks. In July, 1945, five pairs nested in a 3-acre pasture by our creek, with willows to perch on as they sang. Though the Loggerhead Shrike was usual at Tyvan and on the road from our farm to Wauchope, I have not seen one since moving 12 miles closer to Redvers. The Sparrow Hawk was once very common at Wauchope, but seems to have disappeared in the last 10 years or so; I have not seen one since we moved near Redvers in 1965. The Marsh Hawk remains the most common hawk in all areas.



The various swallows — Barn, Tree, Bank and Cliff — seem to be in larger numbers now than they were in the early days.

As our shelter belt with 23 rows of trees and the poplar “bluffs” grew up, bird-life certainly altered at Wauchope. It became a challenge to identify the various songsters, beginning with the Robin and Eastern Kingbird first thing each dawn. Mourning Doves, Warbling Vireos and Black-billed Cuckoos had to be learned, as they appeared. The identification of the Warbling Vireos was confirmed when I finally found Matthews’ book with bird song charted as music. Baltimore Orioles and Yellow Warblers of course were easy to identify. The Western Kingbird did not arrive at Wauchope until 1935, but now there are more Western than Eastern Kingbirds.

I remember the winter I first saw and heard the sweet whistling calls of the Pine Grosbeaks. This may have stimulated me to start a weekly nature column for the *Saskatchewan Farmer* in 1939, after my better-qualified husband had declined a request to write it. I have since seen Evening Grosbeaks in two winters and a Rose-breasted Grosbeak one spring.

The overbearing Bronzed or Common Grackle is now a menace to the birds of the shelter belt — the Least Flycatcher, Eastern Phoebe, House Wren, Yellow Warbler, Baltimore Oriole, and the two species of kingbirds.

The Black-billed Magpie was unknown in my youth at Tyvan. At Wauchope its numbers have shown a steady increase beginning about 1925, and particularly from 1939 to 1949. This prolific bird is now much too common. Starlings first arrived at Wauchope in the winter of 1939-40 and in 1940 a pair nested in an elevator at nearby Arkman.

On April 25, 1950, I saw a major migration close at hand when “a half mile of robins,” two or three birds per square yard, migrated through our yard. The minor notes of the song of the Harris’ Sparrow are the most hauntingly beautiful music I know and it is my favourite as the birds pass through in migration each spring.

Additional comments (C. S. H.): On reading the above, Marion’s brothers J. Stewart Houston of Tyvan and Dr. Clarence J. Houston of Yorkton, and her niece, Janet Houston Mark of Redvers, offered the following notes:

The Houstons settled nearly three miles north of Tyvan on section 9-13-13-W2. The father, Stewart Houston and his oldest son, J. Stewart, arrived in 1903 and were joined the next spring by the rest of the family, including four-year old Clarence and Marion, not yet two. On this land there were three stone rings where Indians had pitched their tents, and there were six buffalo skeletons around one slough alone.

The nearest firewood was 28 miles NNE at Lake Marguerite, where they obtained poles for their first stable. The last major prairie fire, passed across the north of their land in 1904, but was diverted by the men at a large slough north of the buildings. Mrs. Houston and the younger children put out those flames that jumped across the slough. By 1913, all 480 acres were broken, except for 60 acres of pasture. Even during the first breaking, there were gulls following the horse-drawn ploughs. Three major sloughs were drained partially in 1911, 1912 and 1915.

The first trees were planted in 1907, with a small shelter belt set out in 1912, the year the big stone house was built. In 1915, J. Stewart Houston built his own house and barn and in 1917 he planted a large shelter belt around his buildings.

Richardson’s Ground Squirrels seemed to increase as the land was cultivated. J. Stewart Houston remembers setting a tablespoon of grain, coated with cornstarch, corn syrup and strychnine mixture at 1,200 ground squirrel holes in one year about 1916 or 1917 and shooting 550 adults squirrels on 320 acres one spring in the 1920’s. They decreased greatly in the 1940’s.



House Sparrows appeared within a few years and Barn Swallows perhaps as late as 1915. Sharp-tailed Grouse were much more common then and Pinnated Grouse (Greater Prairie Chicken) were present until about 1914 or 1915. Crows occurred, but were not common because they lacked nesting sites anywhere nearby for many years; their numbers increased later. Marsh Hawks were common, but there were no tree-nesting hawks on the farm. Great Horned Owls were never seen in the first 20 years and Mourning Doves were absent at least until 1920, though Harley Ranson saw one four miles further east in 1919 (*Blue Jay* 23: 3-9). About 1910 or 1911, there was a small colony of Burrowing Owls in the pasture; there were snakes in some of the burrows.

Black-billed Magpies were completely absent until at least 1920 and uncommon until the 1940's. Lark Buntings were absent until at least 1920;

Harley Ranson reported his first in 1922. In winter, there were fewer birds than today, but Snow Buntings appeared every winter.

Janet Houston Mark thinks her first bird recollections date back to 1934 when the shelterbelt trees were 20 feet high, growing slowly in the drought years. In 1937 and 1938 she became interested in nature when their teacher Miss Ferne Barker, had their class join Dick Bird's "Camera Trails Club." They listened to Dick's nature broadcasts, received his club bulletin, and went on at least one nature hike when he visited their school. Janet remembers Baltimore Orioles, Eastern Kingbirds, Robins, Yellow-shafted Flickers, Brown Thrashers, Loggerhead Shrikes, and House Wrens at first, Western Kingbird arrived later, likely about 1937, though Harley Ranson reported them regularly after 1924.

## In Remembrance: MARION NIXON (1902-1972)

"Nature — by Marion Nixon, Wauchope, Sask." was the title of the column in the *Saskatchewan Farmer* which I had been reading for several years, enjoying its precise observations and deft descriptions. I always admired the writer's ability to give unity and artistic form to a day's grab-bag of sights and sounds, caught in spare moments of a busy farm life.

Finally — and this would be exactly 30 years ago this March — I sat down and wrote to Marion Nixon. Back came the swift response, grateful for the appreciation and offering friendship full and free. She introduced me to the *Blue Jay* and to a writer's magazine, and, within the year, she had found a berth for me in the writers club to which she and her husband both belonged.

It operated by mail — a fat little "budget" wherein each member submitted a manuscript to the judgement of his peers. Only once did we assemble from our separate hinterlands, in January, 1945, in conjunction with a press women's gathering in Regina. I mention it here because guest speakers on that long ago night were two elequent forerunners of the gospel of conservation. Fred Bard and R. D. Symons!

The *Budget* eventually folded, but my friendship by letter with Marion Nixon highlighted by infrequent visits, continued through the years to the last letter in August, wavering but still comprehensible. Partially paralyzed by a series of strokes both reading and writing had become difficult for her, and creative thinking impossible.



*Marion Nixon and Sweetheart*



Marion Houston, an aunt of Dr. Stuart Houston and a relative, on her mother's side, of the Belchers, was born in Ottawa on August 10, 1902. Her family came to Saskatchewan in 1904 where she was brought up on a farm north of Tyvan. She attended Regina Normal School and in the early twenties, while teaching at Wauchope, she met John Nixon, a man who shared her literary interests. They married in 1923 and here in this parkland corner of Saskatchewan they raised three girls and one boy. They farmed 4 miles north of Wauchope until retirement in 1964. A quiet life, one might say; nevertheless, it was filled with activities and interests, fruitful, and far-ranging in thoughts and ideas.

Marion Nixon became widely known for her nature column which began in the *Saskatchewan Farmer* and ran from 1939 until April, 1958; in nineteen years she never missed her twice monthly deadline, a feat which many a professional might envy. As I browse through the faded clippings I find them still morning-fresh, partly because nature is eternally new, but also because of the clarity and grace of the words.

In spring the writer sees "the poplars' tiny lamb tails hanging in bunches" and listens to "the long smooth rise and fall of the upland plover's call." In September the dome of the sky seems to act as a huge hemispherical sounding board, against which the drone of combines and threshing machine, the long wail of a moving freight, reverberate and echo upon each other till we seem immersed in throbbing sound."

Perhaps the long, quiet winters leave "more time to stand and stare," for she writes fascinatingly of winter in all its beauty and malevolence. Here is a sample from an essay on snow formations after a storm: "Packed close by the wind that whirled and snaked the loose snow up their carven crests like smoke . . ."

Besides her column, Marion Nixon wrote articles on a vast variety of subjects — knitting, sewing, making over, household hints for improvising during the Depression, gardening, cooking, weaving — her interests seemed unlimited. These articles were accepted for publication in *Country Guide* and *Nor'West Farmer*, *Free Press Prairie Farmer*, *Toronto Saturday Night*, *Saskatchewan Farmer*, *Grain Growers' Guide*, *The Family Herald*, *The Leader Post*, *Writers' Studio Magazine*, and *Blue Jay*. In later years they were complemented by her own photography. One color photo appeared in a *Western Producer* calender, another of herself at her loom was used as a *Family Herald* cover.

Marion excelled at all crafts, but weaving was her favorite. To make her own designs was the ultimate delight; I still have place mats in her Saskatchewan plaid, a delicate pastel with snow-like background. This flair for art repeats itself in a daughter who is a commercial artist in London, England.

Marion enjoyed gardening too, an enthusiasm which will continue to bloom in the beautiful grounds and nursery of another daughter, Joy Purvis, at Redvers, Saskatchewan.

Every hobby had to pay its way in produce, in prize money at the Redvers Agricultural Fair, in writing cheques which went into typewriters, cameras, looms, good books in plenty, and above all into Christmas and birthday gifts for her ever-expanding family, which now includes 14 'grands' and 6 'greats' as Marion called them.

Marion Nixon enjoyed young folk; no one will ever know how many young people have been nudged toward their destiny by her unobtrusive encouragement.

One last talent must be mentioned, her gift for hospitality. To quote from the tribute of one who knew her well: "In this household of stimulating conversation, enthusiasm, ideas and integrity, there was boundless hospitality for neighbours, friends, her husband's acquaintances in the Livestock Associations and in the court of justice where he acted as J.P., for newspapermen, writers and readers, gardeners and naturalists, 4H and Homemakers, local politicians and voters during the many

years when their home was a polling booth, for members of the R.C.M.P. and lonely English airmen training in Canada during the war." To the list one might add weakling lambs born in the cold of early spring, and Sweetheart, Marion's pet chickadee, which learned to eat nuts from her hand.

After the *Saskatchewan Farmer* ceased publication, Marion Nixon began editing her Nature columns into book form; but illness in the home, followed by her own tragic loss of health, cancelled out the plan and left prairie literature the poorer for it. For Marion there was compensation in the fact that John Nixon, whose poetry was printed in many places, including *Queen's Quarterly*, had been able, some years previously, to publish two collections of his poems. She lived to see many of her observations used in R. W. Nero and M. R. Lein's *Birds of Moose Mountain* in 1971. She died on October 6, 1972. — *Rose McLaughlin, Indian Head, Sask.*

The following notes were supplied by Mary Houston:

Marion Nixon was a supporter of the *Blue Jay* from its beginning, contributing many articles to it on a variety of subjects developed from her own nature observations. Although unable to attend many meetings of the Saskatchewan Natural History Society because of home commitments, she retained her interest in the society and served two 3-year terms as director from 1949-52 and 1958-61. On three occasions (1943, 1947 and 1953) she conducted a Christmas Bird Count at Wauchope. Her contributions to the *Blue Jay* include:

Sept. 1949 Vol. 7 (3) 10. Bird notes; (3) 17. Mammal notes.

Sept. 1950 Vol. 8 (3) 11. Prairie Chicken Dancing Grounds; (3) 13. Friendly Chickadees; (3) 21. Beavers at Wauchope.

March 1951 Vol. 9 (1) 10. Chickadees Back Again

Sept. 1952 Vol. 10 (3) 2. Patience and Peanuts.

March 1954 Vol. 12 (1) 13. Untimely Snow: Woeful Weather for Birds

Sept. 1954 Vol. 12 (3) 4. A Sense of Humour; (3) 24. A pair of Yellow Lady Slippers; (3) Inside back cover. Stone Hammer.

June 1955 Vol. 13 (2) 2. Then and Now.

June 1956 Vol. 14 (2) 50. Try "Drawing" Bird Song

Sept. 1957 Vol. 15 (3) 97. The Wily Magpie

Dec. 1959 Vol. 17 (4) 159. The Yellow Lady's Slipper (illustrated by daughter Helen)

### MARION NIXON MEMORIAL

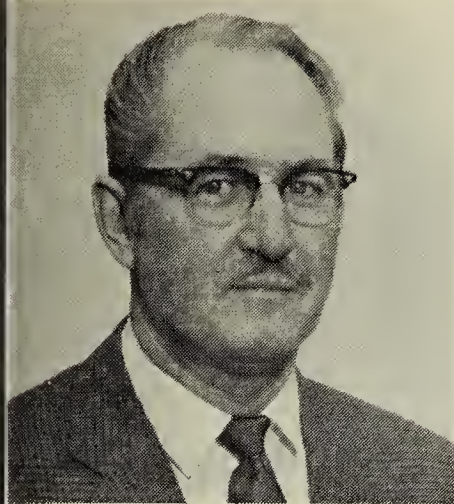
The family and friends of the late Marion Nixon of Redvers, Sask. have provided funds given in her memory to underwrite a project of the Saskatchewan Natural History Society. The family and Board of Directors have agreed that the publication of an Index issue of the *Blue Jay*, covering the 10 year period since a similar issue was published,

would be an appropriate project. Marion Nixon was active in the affairs of the Saskatchewan Natural History Society and was a frequent contributor to the *Blue Jay*; thus it was considered fitting that funds given in her memory should further the goals of the Society. Mrs. Pat O'Neil will edit the special issue and it is expected that publication will occur in about a year.

### R. D. SYMONS

At the time of going to press, we have learned with regret of the death of Mr. R. D. Symons on February 2, 1973.





J. Janz

## JOHN JOSEPH JANZ, 1919-1972

BY DAVID R. M. HATCH\*

It was with shock and a sense of great personal loss that the friends of John J. Janz learned of his instant death in a truck-school bus collision on May 24, 1972.

Mr. Janz was born on October 23, 1919, and with the exception of service during World War II, he had spent his entire life at Souris, Manitoba. He was extraordinarily community minded and was second to none in involvement in community activities in the Souris district. The old adage, "if you want something done, give it to a busy man," was never more true than in Mr. Janz's case.

For many years, Mr. Janz operated the Marshall-Wells Store in partnership with Mr. Denny Russell. He then left the hardware business and commenced joint operation of Souris Rock and Agate, a lapidary firm, founded with one of his brothers in 1962. This business grew and helped to make Souris one of the major tourist attractions in south-western Manitoba. At the time of his death, Mr. Janz was treasurer of the West-Man. Tourist and Convention Association.

I best knew Mr. Janz as an aviculturist. He had a great love of nature and this fact prompted him to want Souris to have a nesting population of Canada Geese within the town. With the backing of the town council, he acquired some Canada Geese and established them in Victoria Park. This flock prospered under his guidance and was extremely successful in producing progeny. The town council is now letting part of each year's offspring become free flying, while retaining the remainder of the geese to maintain the local population and to help to re-establish the species as a nesting bird in areas where it was formerly extirpated. It was continuous care and a great deal of work on Mr. Janz's part that made this flock successful. Canada Geese now fly in and out of the town and nest within 100 yards of the main street. This is an achievement of which no other town or city in Manitoba can boast. Mr. Janz through his untiring efforts made this feat possible by doing nearly all of the work involved in the project single handedly. The Canada Geese of Souris are a lasting, living tribute to him.

On October 22, 1972, I had the pleasure of participating in a memorial service dedicating the sanctuary portion of Victoria Park in Souris to the memory of Mr. Janz. A large crowd was present to hear the tributes and see the unveiling of the cairn naming the sanctuary the John J. Janz Memorial Sanctuary. The sanctuary, situated on Plum Creek at its junction with the Souris River, is located in a magnificently treed and peaceful area and is a fitting tribute to this man.

Mr. Janz was a man of many and varied talents. He was a respected horticulturist and a gifted musician, the saxophone being his specialty. He enjoyed photographing wildlife and obtained some excellent slides of Snow Geese in the Souris area in April of 1972. He also was a superlative landscape painter.

\*Manitoba Museum of Man and Nature,  
190 Rupert Avenue, Winnipeg, Manitoba R3B 0N2





Mrs. John J. Janz and Randy Janz Unveiling the Cairn

He is survived by his wife Olive ("Marnie"), one son, Randy, at home; two daughters, Mrs. K. (Dawn) Bowie of Winnipeg and Sandra at home; his parents, Mr. and Mrs. Mark W. Janz; two sisters, Mrs. G. (Judy) Hale of Souris, Mrs. A. (Katherine) Evans of Winnipeg; five brothers, Lloyd of Cranbrook, B.C., Douglas, Mark E., Donald and Turney, all of Souris.

He leaves behind a saddened community, but one that will always be grateful that he lived and worked in it. He made a lasting impact on his town and his associates and his life is an example for us to follow. He showed us how we could live in harmony with our environment and how one can instill an appreciation of nature in others. May the Canada Geese always fly in and out of Souris as an everlasting tribute to him.





# A SHORT-FACED BEAR from Ice Age Deposits at Lebret, Saskatchewan

BY C. R. HARINGTON\*

## Introduction

In 1937, W. H. Rand and P. H. Stokes of Winnipeg collected some vertebrate fossils from an excavation in ice age (Pleistocene) gravels at Lebret. Of 16 fossils which they deposited in what is now the Manitoba Museum of Man and Nature (MMMN), 12 are bison and three are mammoth. The last, and perhaps most interesting of the specimens, is a fragment of the mandible of a bear. An entry in the MMMN accession book indicates that this specimen had been examined and identified by the well known paleontologist C. M. Sternberg as a "bear's lower jaw."

What is the exact nature of the fossil, what kind of bear does it represent, how old is it? These are some of the questions I wished to answer when Dr. G. E. Lammers allowed me to borrow the fossil.

## Description and Identification

The specimen (MMMN V186; Fig. 1) is a posterior fragment of the left mandible of a large bear. It contains most of the third molar tooth and the socket for the second molar. The part of the jaw that rises behind the cheek teeth (coronoid process) is missing, and the posterior extremities (mandibular condyle and angular process) are slightly eroded. The mandible fragment is more massive than the same part of a recent Kodiak Bear with which it was compared, which gives an idea of its large size.

A peculiar and significant feature of the specimen is a pronounced, oblique ridge behind and below the third molar (Fig. 1) with depressions for muscle attachments on either side. Living North American bears have only a single

depression (masseteric fossa) where the cheek muscles are attached to the back of the mandible. This narrowed down the identification to an American subfamily of bears including *Plionarctos* (upper Pliocene age), *Tremarctos* (the Spectacled Bear of the Andes, and the only living member of this subfamily — Pleistocene to Recent in age), and *Arctodus* of Pleistocene age.<sup>4 7</sup>

Measurements available on V186 (Table 1) show that the Lebret fossil lies beyond the known size of Spectacled Bears (*Tremarctos*), and is closest to that of the Short-faced Bear (*Arctodus*). In addition, the shape of the forward muscle attachment depression, the subtriangular shape of the third molar, and the basal breadth of the jaw where it rises behind the third molar are similar to those features in the Short-faced Bear.<sup>7</sup>



Fig. 1 — Left side view, Giant Short-faced Bear (*Arctodus simus*) mandible fragment containing M<sub>3</sub> (MMMN V186) from Lebret, Saskatchewan. Note the partial socket for M<sub>2</sub> to the left of M<sub>3</sub>. The oblique ridge dividing the premasseteric fossa from the masseteric fossa is characteristic of the Tremarctine bears such as *Arctodus*.

\*National Museum of Natural Sciences,  
National Museums of Canada, Ottawa, Canada

TABLE 1

Measurements of the Lebret specimen (MMMN V186) compared to the giant short-faced bear (*Arctodus simus*), the eastern short-faced bear (*A. pristinus*), the North American spectacled bear (*Tremarctos floridanus*) and the spectacled bear (*T. ornatus*).

\*1 — Length of M<sub>3</sub>. 2 — Width of M<sub>3</sub>. 3 — Depth of mandible below centre of M<sub>3</sub>. 4 — Minimum length, centre of M<sub>3</sub> to notch between condyle and angular process. 5 — Anteroposterior diameter at base of coronoid process.

\*\* Approximate measurements from scaled figure (Kurten 1967, Fig. 23).

| Specimens   | Measurements (mm)* |           |        |         |        |
|---|--------------------|-----------|--------|---------|--------|
|   | 1                  | 2         | 3      | 4       | 5      |
| <i>Arctodus simus</i> MMMN V186<br>Lebret, Saskatchewan.<br>Pleistocene | 20.6               | 18.1      | 63.8   | 88.2    | 69.7   |
| <i>A. simus</i> UMMP V26368<br>Meade County, Kansas.<br>Pleistocene     | 20.0               | 16.8      | 67.5   | 104.3   | 83.0   |
| <i>A. simus</i> F:AM 25531<br>Hay Springs, Nebraska<br>Pleistocene      | 23.5               | 18.6      | 79.5** | 115.0** | 97.0** |
| <i>A. simus</i> <sup>5</sup><br>Mean                                    | 21.3               | 17.1      |        |         |        |
| Range   | 19.0-24.2          | 15.0-19.1 |        |         |        |
| Number of specimens   | 20                 | 20        |        |         |        |
| <i>A. pristinus</i> <sup>5</sup><br>Mean                                | 21.3               | 16.5      |        |         |        |
| Range   | 20.4-22.5          | 16.0-17.0 |        |         |        |
| Number of specimens   | 7                  | 7         |        |         |        |
| <i>Tremarctos floridanus</i> <sup>4</sup><br>Mean                       | 16.3               | 12.3      |        |         |        |
| Range   | 14.6-18.5          | 11.6-13.9 |        |         |        |
| Number of specimens   | 17                 | 17        |        |         |        |
| <i>T. ornatus</i> <sup>4</sup><br>Mean                                  | 13.4               | 10.2      |        |         |        |
| Range   | 10.8-16.7          | 8.7-12.5  |        |         |        |
| Number of specimens   | 27                 | 27        |        |         |        |

Two North American species of *Arctodus* are recognized: *Arctodus pristinus*, which I will call the Eastern Short-faced Bear and *Arctodus simus*, the Giant Short-faced Bear.<sup>5</sup> The first is relatively lightly built with small teeth and slender limbs. Its face is comparatively long with cheek teeth that seem small for the jaws. The second bear has a shorter face, and larger cheek teeth in deeper heavier jaws. The fossil is best referred to the Giant Short-faced Bear, considering the dimensions of the third molar tooth. The relative shallowness of

the mandible (which approximates that of a Giant Short-faced Bear's mandible from the last interglacial (Sangamon) deposits in Kansas) suggests that the Lebret fossil represents a medium-sized individual, perhaps a female.<sup>2 5</sup>

Others reasons for considering that the Lebret specimen represents the Giant Short-faced Bear are: (1) the larger species is known to have lived during the Sangamon-Wisconsin period, while, so far, Eastern Short-faced Bear remains predate that period;<sup>5</sup> (2) apparently the



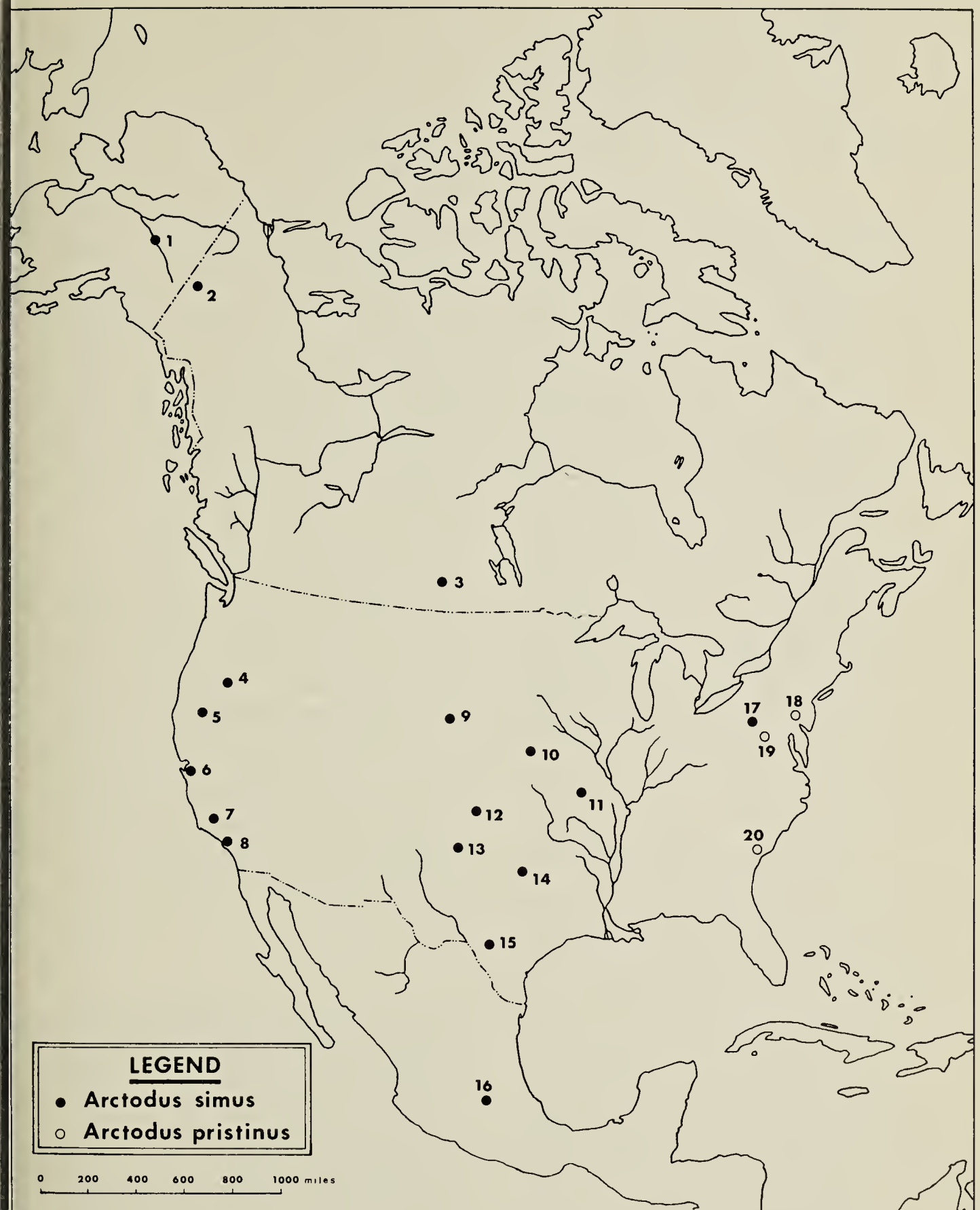


Fig. 2 — Some Pleistocene Short-faced Bear (*Arctodus*) localities in North America (most localities from B. Kurten).<sup>5</sup> Dots represent one or more specimens. Locality data: 1. Fairbanks area, Alaska. 2. Dawson City area, Yukon Territory. 3. Lebret, Saskatchewan. 4. Fossil Lake, Oregon. 5. Potter Creek Cave, California. 6. Irvington, California. 7. McKittrick, California. 8. Rancho La Brea (Los Angeles), California. 9. Hay Springs, Nebraska. 10. Cass County, Nebraska. 11. Carroll Cave and Perkins Cave, Camden County; Bat Cave, Pulaski County, Missouri. 12. Jinglebob locality, Meade County, Kansas. 13. Rock Creek, Texas. 14. Hill-Schuler locality, Denton County, Texas. 15. Friesenhahn Cave, Texas. 16. Tequixquiac, Mexico. 17. Frankstown Cave, Pennsylvania. 18. Port Kennedy Cave, Pennsylvania. 19. Cumberland Cave, Maryland. 20. Ashley River locality, North Carolina.

Eastern Short-faced Bear was confined to the Atlantic coastal region of North America, while the Giant Short-faced Bear occupied the central and western parts of North America during the ice age (Fig. 2).

### Age

An interesting feature of the specimen is its rust colour, due to staining by iron in the ground water. Its outer surface shows traces of a dark filigree pattern ("pyrolusite"), also due to mineral staining. In this respect it closely resembles vertebrate fossils from the Fort Qu'Appelle locality, which are thought to be of last interglacial (Sangamon) age.<sup>3</sup> Le Bret is 4 miles east, across the valley, from Fort Qu'Appelle. This evidence suggests to me that the mandible fragment is of Sangamon interglacial, or at the latest, of Wisconsin interstadial\* age.

Sediment adhering to the fossil indicates that it came from a sandy gravel layer — probably an outwash deposit laid down near the close of the previously mentioned interglacial or interstadial.<sup>1</sup>

### Conclusion

This is the second report of a Short-faced Bear from ice age deposits in Canada. The first specimen, a nearly complete cranium (NMC 7438) was found near Dawson City, Yukon Territory, in 1909.<sup>6</sup> It exceeds in size all other known skulls of the Giant Short-faced Bear, and is probably of late Pleistocene age. The Le Bret specimen is interesting because it shows that the same species also occupied what is now southern Saskatchewan during that period — probably about 100,000 years ago, or perhaps less.

The map (Fig. 2) indicates that the Giant Short-faced Bear occupied higher, well-drained grasslands in central and western North America during the ice age, while the Eastern Short-faced Bear preferred more heavily wooded regions near the Atlantic coast.

\* A relatively brief, warm interval occurring in a glacial period. Cooler and of shorter duration than an interglacial, such as the present.

B. Kurtén considers the Giant Short-faced Bear to have been a predominantly carnivorous species, and by far the most powerful predator in the ice age of North America.<sup>5</sup> It may have preyed on large herbivores such as bison, deer, horses, and ground sloths (see cover). Bison and mammoths were among its contemporaries in southern Saskatchewan during the late Pleistocene.

The Giant Short-faced Bear became extinct toward the close of the Wisconsin glaciation some 10,000 years ago, perhaps partly because of the earlier extinction of some of its herbivorous prey species, and partly because of the increased competition with Brown Bears (*Ursus arctos*) which had entered North America from Eurasia.

### Acknowledgments

I am grateful to: Dr. George E. Lambers (Manitoba Museum of Man and Nature) for lending me the specimen and for reading a draft of the manuscript; Dr. Claude E. Hibbard (University of Michigan) for supplying comparative measurements of a Short-faced Bear mandible from Kansas; Mr. G. Anderson (National Museums of Canada) for the photograph; and Mr. C. Douglas (National Museums of Canada) for the map.

<sup>1</sup>Christiansen, E. A. 1972. Stratigraphy of the Fort Qu'Appelle vertebrate fossil locality, Saskatchewan. Can. Jour. Earth Sci. 9(2): 212-218.

<sup>2</sup>Hibbard, C. W. 1955. The Jinglebob interglacial (Sangamon?) fauna from Kansas and its climatic significance. Univ. Michigan Mus. Paleontol. Contr. 12(10): 179-228.

<sup>3</sup>Khan, E. 1970. Biostratigraphy and palaeontology of a Sangamon deposit at Fort Qu'Appelle, Saskatchewan. Nat. Mus. Can. Publ. Palaeontol. No. 5: 1-82.

<sup>4</sup>Kurtén, B. 1966. Pleistocene bears of North America. 1. Genus *Tremarctos*, spectacled bears. Acta. Zool. Fennica 115:1-120.

<sup>5</sup>Kurtén, B. 1967. Pleistocene bears of North America. 2. Genus *Arctodus*, short-faced bears. Acta. Zool. Fennica 117:1-60.

<sup>6</sup>Lambe, L. M. 1911. On *Arctotherium* from the Pleistocene of Yukon. Ottawa Nat. 25 (2): 21-26.

<sup>7</sup>Merriam, J. C. and C. Stock. 1925. Relationships and structure of the short-faced bear, *Arctotherium*, from the Pleistocene of California. Carnegie Inst. Washington Contrib. Palaeontol. Publ. 347 (1): 1-35.



# Common *INSECT GALLS* of Saskatchewan

BY J. D. SHORTHOUSE\*

Seldom does one walk in the outdoors without coming across abnormal growths on the leaves or stems of various plants. "Pine cones" on willows or "marbles" on rose stems have captured the curiosity of most of us. If we open one of these structures, we will find the larva of a tiny insect nestled at the centre. Such is the world of the gall insects, a select group of specialized insects that have evolved the amazing ability to regulate growth patterns of plants to their own advantages. The "pine cones" or "marbles" are actually plant structures caused by the feeding activities of the larvae of gall insects. Some, as yet unknown, substances in the larva's saliva cause the plant cells to enlarge and multiply rapidly. The insect is thereby surrounded with thick layers of nutritive plant matter. The plant not only supplies the insect with an abundance of food, but also provides protection from rigours of the environment and a shelter in which to pass the winter. The thick walls of the gall also give the helpless insect some protection from predators.

Insect galls are better known to people than are the insects that produce them. Galls are often noticed because of their abundance, colour, or grotesque size and shape. On the other hand, the gall insects are usually small and difficult to identify. Well over 1,500 different species of gall-forming insects have been described from North America and about 100 different kinds probably occur in Saskatchewan. The gall making habit occurs in six orders of insects: beetles (Coleoptera), moths (Lepidoptera), thrips (Thysanoptera), aphids (Homoptera), flies and midges (Diptera), and sawflies and cynipid wasps (Hymenoptera). About 55% of

the galls are caused by flies and midges and 35% by cynipid wasps. Little is known about the insect galls of Saskatchewan and, in fact, a preliminary checklist has yet to be made. In this article only the most common insect galls are discussed.

One characteristic of gall insects is that they are very host specific, that is, each species of gall insect always forms galls on the same species of host plant. For some unknown reason certain plants are more attractive to gall formers than others. In Saskatchewan the plants with the most gall insects are the willows, poplars, roses and goldenrods. Large numbers of gall formers are associated with the oaks which have a restricted distribution in this province and this is one reason why Saskatchewan has few kinds of galls compared to other areas of North America. Gall insects are also very specific as to the part of the plant they attack. Galls are found on the roots, stems, flowers, buds, leaves and petioles depending on the species of insect. The host plant and the part attacked usually are characteristic of the insect species and this information is very useful in making identifications.

Another interesting aspect of gall insects is that each species of insect produces its own kind of gall, which is remarkably constant in size and shape. There are two basic types of galls: open and closed. The open galls are considered the more primitive. Those formed by aphids (Fig. 1) are a good example. In the spring aphids begin feeding on the outside of the poplar leaves and as a result of their feeding, cause the leaf to fold and grow inwards to produce a pocket in which they live and feed. Young aphids are produced inside the galls and once they mature and develop wings, they escape through natural openings in the gall. Closed galls are

\*Department of Biology,  
University of Saskatchewan,  
Saskatoon, Saskatchewan.

caused by the larvae of beetles, moths, flies, sawflies and cynipid wasps. These insects lay eggs on or within healthy parts of a plant and their larvae then cause the gall to be formed. The goldenrod ball gall (Fig. 3) is one of the most common examples of a closed gall. In some parts of Saskatchewan nearly every goldenrod stem will have one or two galls. The female flies (Fig. 15) lay their eggs upon the young goldenrod stems in the spring and the gall appears a few weeks after the larvae (Fig. 14) have begun to feed on tissues of the stem. The larvae are full grown by fall and remain inside the gall throughout the winter. As soon as the snow has melted in the spring, the larvae change into pupae and about a week later the adults emerge and the cycle is repeated. More advanced insects such as the cynipid wasps form galls of greater complexity than those of aphids. Some rose galls are as large as apples while the insects that cause them are smaller than apple seeds.

### **Insect Gall Communities**

Many insects besides the gall-formers often are associated with galls. Plant feeding insects are attracted to the concentrations of nutritive plant cells and parasitic insects attack and feed on the larvae of the gall formers. Another group of insects, closely related to the cynipid wasps (Fig. 12), cannot form their own galls, but instead lay their eggs inside the galls of other insects (Fig. 20). During the laying process the larvae of the gall-formers are killed. When the larvae of these insects, called "inquilines" (from the Latin word for "guest"), begin feeding on the walls of the gall, they too stimulate the cells to grow and as a result each larva is enclosed in its own 'gall within a gall' (Fig. 21). The increased number of insects inside the modified gall attracts even more parasites.

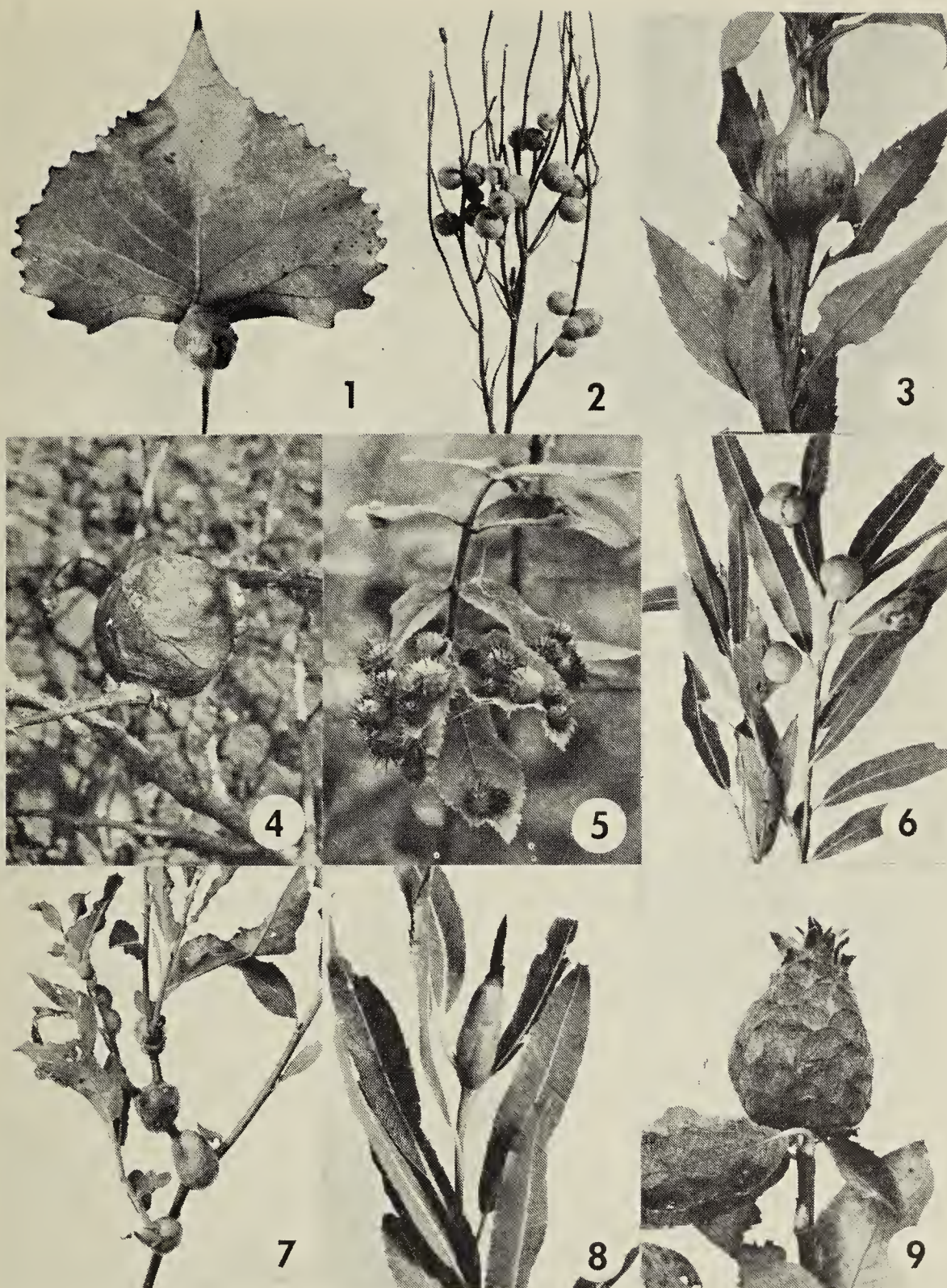
The group of insects associated with galls formed by a particular species is an excellent example of a simple insect community. Studying these insects, one is exposed to nearly all aspects of community ecology. If you examine galls at various times throughout the summer,

you will see that the numbers and kinds of occupants change as the season advances. Ecologists call this change "succession." When the season draws to a close and no further changes occur, the community is referred to as having reached its "climax." If one determines the feeding habits of the gall inhabitants, a food web can be constructed: for instance, when the gall formers and inquilines (guests) feed on the plant tissues and they in turn are fed upon by the parasites. Often a parasite will itself be attacked by another parasite. But in gall communities, the key character is always the gall former, for without the gall, none of the other species could exist.

### **Studying Insect Galls As A Winter Project**

Most Saskatchewan students and naturalists would agree that they are restricted in the kinds of biology projects that they can attempt during the winter. Insect gall studies are an exception, for not only can some galls be collected and studied during the winter months (those of Figs. 2, 3, 4, 7, 8 and 9), but they are actually easier to find when the leaves have fallen and the background is snow. If at least 15 galls of one kind are collected in the winter and brought indoors, the insects, thinking it is spring, will begin emerging within about 3 weeks. Galls with holes indicate that the occupants have already emerged. Glass jars make good rearing containers and when the insects crawl to the lid, they can be easily removed with a small moistened brush. A great deal can even be learned about communities by examining these galls through the winter. To observe community succession, arrange a series of about 20 vials (pill bottles) containing alcohol near the rearing jar. At the end of the day place all the emerged insects in a vial, use a different vial each day and mark the date on it. Comparison of numbers and kinds of adults from the first few days of the cycle with those near the end will illustrate succession. It is interesting to note that in most rose gall communities the gall formers are the least common of the insects.





Figs. 1 to 9 — Common insect galls found in Saskatchewan.

Fig. 1. Poplar leaf gall caused by aphids of the genus *Pemphigus*.

Fig. 2. Skeleton Weed *Lygodesmia juncea* galls caused by larvae of the cynipid wasp *Antistrophus pisum*.

Fig. 3. Goldenrod ball gall caused by maggots of the fly *Eurosta solidaginis*.

Fig. 4. Rose stem gall caused by larvae of the cynipid wasp *Diplolepis multispinosus*.

Fig. 5. Rose leaf galls caused by larvae of the cynipid wasp *Diplolepis polita*.

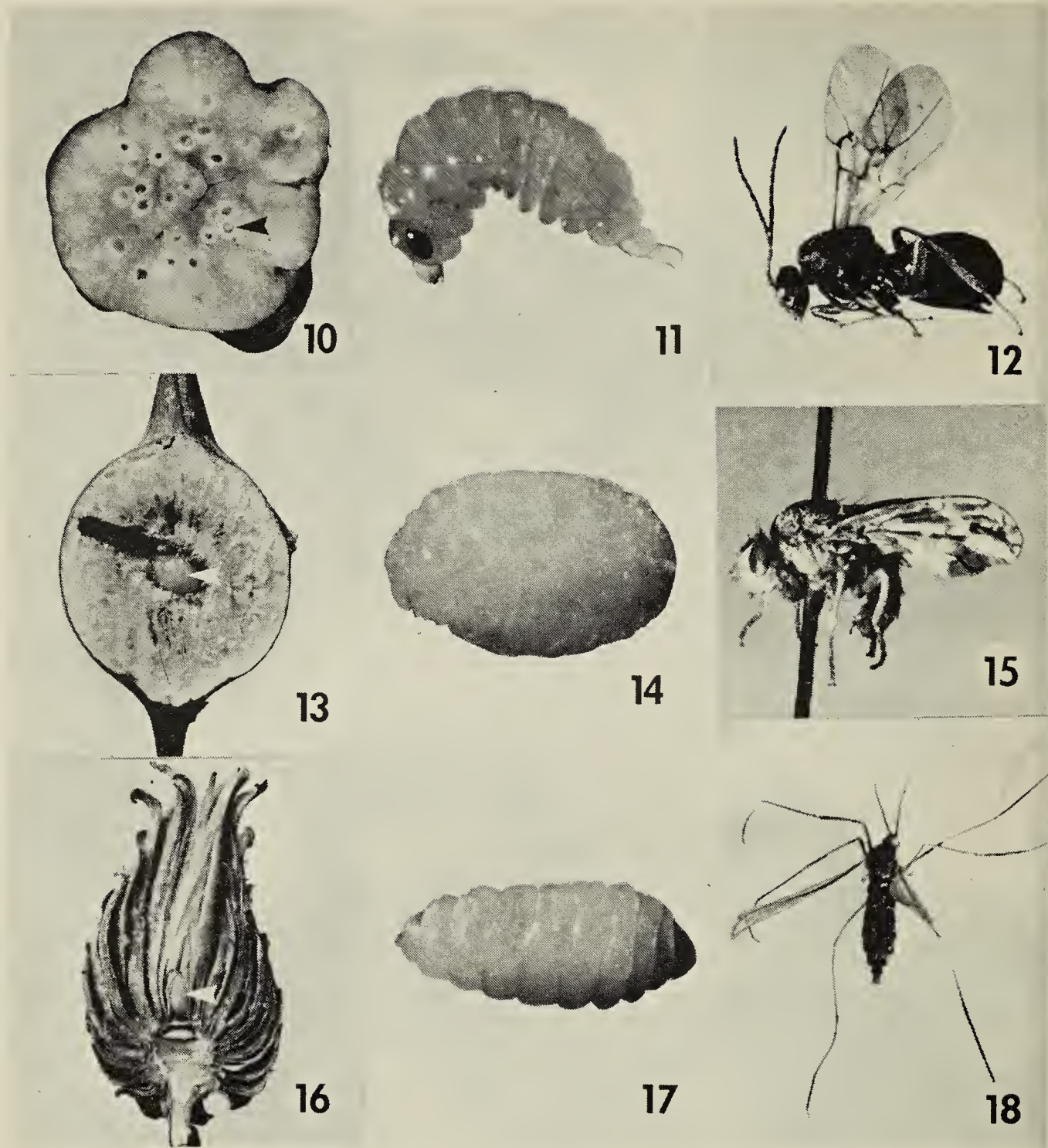
Fig. 6. Willow leaf galls caused by larvae of the sawfly *Pontania pomum*.

Fig. 7. Willow stem gall caused by larvae of the midge *Rhabdophaga batatus*.

Fig. 8. Willow bud gall caused by larvae of the midge *Phytophaga rigidae*.

Fig. 9. Willow cone gall formed at the tips of shoots by larvae of the midge *Rhabdophaga strobiloides*.





Figs. 10-18. — Dissected galls showing position of the gall-forming larvae and enlarged photographs of the immature insects and their adults.

Fig. 10. Opened rose stem gall showing numerous chambers occupied by cynipid wasp larvae (see arrow).

Fig. 11. Larva of the cynipid wasp which forms the gall shown in Fig. 10. The adult eye is beginning to develop, indicating that the pupal stage is near.

Fig. 12. Adult cynipid wasp of the larva shown in Fig. 11.

Fig. 13. Opened goldenrod ball gall showing the gall-forming maggot at the centre (see arrow). Note that the maggot has chewed a channel to the outside of the gall. This will be the escape route of

the adult fly, which has inadequate mouthparts to chew through the gall tissues.

Fig. 14. Maggot of the fly which forms the gall shown in Fig. 13.

Fig. 15. Adult fly of the maggot shown in Fig. 14.

Fig. 16. Opened willow cone gall showing position of the gall-forming midge larva (see arrow).

Fig. 17. Larva of the midge which forms the gall shown in Fig. 16.

Fig. 18. Adult midge of the larva shown in Fig. 17.

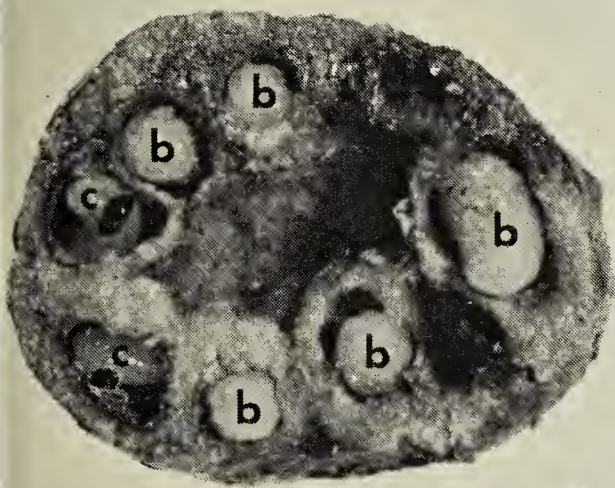




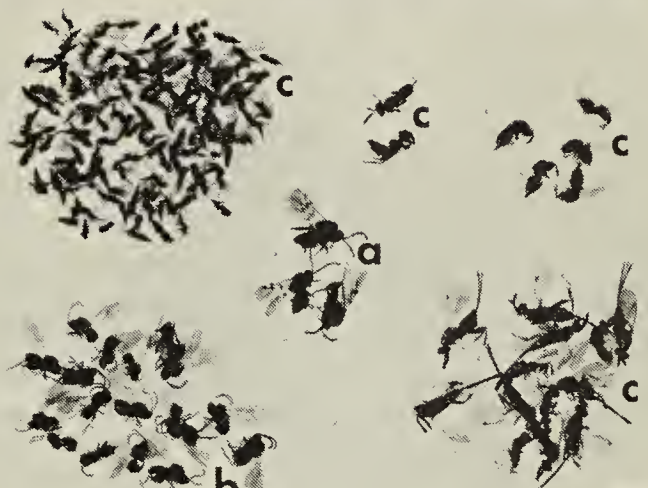
19



20



21



22

Figs. 19-22. Example of a simple insect gall community illustrated by inhabitants of the leaf gall shown in Fig. 5.

Fig. 19. Normal gall caused by a single larva (a) of the cynipid wasp *Diplolepis polita*.

Fig. 20. Inquiline cynipid wasp laying eggs in an immature gall of *D. polita*.

Fig. 21. Gall of *D. polita* modified by the larvae (b) of the inquiline cynipid wasp shown ovipositing in Fig. 20. Some of the inquiline larvae have been attacked and eaten by the larvae of parasites (c).

Fig. 22. Food web of the *D. polita* gall community. The gall-forming cynipid wasps are in the centre (a) and the gall-modifying inquiline wasps are to the lower left (b). Four species of parasitic wasps (c), whose larvae feed on the larvae of the gall-formers and the inquilines, are shown above and to the right of the gall-formers. Note that the number of gall-formers that survive is much smaller than the number of inquilines and parasites.

merging (Fig. 22) and the parasites are the most common. The succession observed indoors will cover a shorter period than it actually takes in nature, but the number of emergents and the order of their appearance will be the same.

When studying Saskatchewan insect galls, there is also the satisfaction of breaking new ground. Little is yet known about the insects that emerge; many of the species have not even been named.



## Acknowledgements

I wish to thank Mr. J. Waddington, University of Saskatchewan photographer, for his help in making the plates and taking most of photographs. Information in this article is from part of a research project financed by the University of Saskatchewan's Institute for Northern Studies and by a National Research Council of Canada grant held by D. M. Lehmkuhl. Preparation of this article was sponsored by the Entomological Society of Saskatchewan.

## USEFUL REFERENCES

- Darlington, A. 1968. The Pocket Encyclopaedia of Plant Galls. Blandford Press, London. 191 pages.  
Felt, E. P. 1940. Plant Galls and Gall Makers. Comstock Publishing Company. 364 pages. Reprinted 1965 by Hafner Publishing Company, Inc., New York.  
Hutchins, R. E. 1969. Galls and Gall Insects. Dodd Mead and Company, New York. 128 pages.  
Mani, M. S. 1964. Ecology of Plant Galls. W. Junk Publishers, The Hague, Netherlands. 434 pages.  
Shorthouse, J. D. 1973. The Insect Community Associated With Rose Galls of *Diplolepis polita* (Cynipidae, Hymenoptera). Quaest. ent. In press.

# 31st ANNUAL SASKATCHEWAN CHRISTMAS BIRD COUNT 1972

Compiled by MARY I. HOUSTON\*

Perhaps the generally mild weather over the count period was an encouraging factor in the record high of 46 localities reporting for the Christmas Bird Census this year. Fifty-five species were seen on count days with an additional 6 species seen during the count period. A Ruby-crowned Kinglet identified at Biggar by Don Renaud adds a new species to the all time list, bringing the total to 115 species with 6 additional.

Especially interesting records included the two Hooded Mergansers seen at Gardiner Dam by the Renauds. This species has only been recorded once previously when in 1960 Ross Lein and Darrel Carlson saw three at Estevan. A Boreal Chickadee seen at Wauchope by Dale Hjertaas during the count period was unusually far south. Unfortunately, the only Gyrfalcon seen during the period (at Belle Plaine, Dec. 20, by Bob McCall) was not in a bird count. There was only one Bald Eagle report this year, at Squaw Rapids. White-breasted Nuthatches seemed more common than usual, being reported from five localities, while Red-breasted Nuthatches were reported from only one locality. Snowy Owls seemed to be in large numbers (e.g., 13 at Harris) in many of the 21 areas in which they were seen. On the other hand, Gray Partridge, which a number of counters felt had decreased greatly in number, were seen in 25 areas, though probably in lower numbers than usual in each area. Ravens were reported from more southern localities (Broadview, Harris, Raymore, Saskatoon, Spirit Lake) than usual.

Special commendation goes to Wayne and Don Renaud who arranged five counts and Wayne Harris who arranged four.

BANGOR, Dec. 31; temp. -20°, sunny; 8 species, 54 individuals. — Mrs. A. Thompson.

BIGGAR, Dec. 16; temp. 20°, light cloud, wind light, 3 in. snow; 11 species, 2699 individuals. (Add: Snow Bunting, 1500, Dec. 22). — Don Renaud, Wayne Renaud (compiler).

BIRCH HILLS, Dec. 27; 9 mi. by car in 1 hour, temp. 20°, overcast, calm, 8 in. snow; 11 species, 446 individuals. (Add: Ruffed Grouse, 4, Common Raven, 9, Evening Grosbeak, 9). — Moe Mareschal.

BORDEN, Dec. 30; 2 mi. on foot in 1 hour and 79 mi. by car in 5-1/2 hrs, temp. -17° to -22°, wind E 8 to 0 mph, cloudy with afternoon fog; 13 species, 1442 individuals. — Don Renaud, Wayne Renaud, and Vic Harper, John Shadick, Stan Shadick (compiler).

\*863 University Drive, Saskatoon.



|                     | Bangor<br>Dec. 31 | Biggar<br>Dec. 16 | Birch Hills<br>Dec. 27 | Borden<br>Dec. 30 | Broadview<br>Dec. 17 | Craven<br>Dec. 26 | Dalmeny<br>Dec. 26 | Dilke<br>Dec. 31 | Eldorado<br>Dec. 28 | Endeavor<br>Dec. 26 | Feudal<br>Dec. 26 | Fillmore<br>Dec. 26 | Gardiner Dam<br>Dec. 20 | Glamis-Barber<br>Lake; Dec. 26 | Grenfell<br>Dec. 24 |
|---------------------|-------------------|-------------------|------------------------|-------------------|----------------------|-------------------|--------------------|------------------|---------------------|---------------------|-------------------|---------------------|-------------------------|--------------------------------|---------------------|
| Mute Swan           |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Canada Goose        |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Mallard             |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     | 235                     |                                |                     |
| Redhead             |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Canvasback          |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Lesser Scaup        |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     | 1                       |                                |                     |
| Common Goldeneye    |                   |                   |                        |                   | 6                    |                   |                    |                  |                     |                     |                   |                     | 12                      |                                |                     |
| Hooded Mergr.       |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     | 2                       |                                |                     |
| Goshawk             |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Golden Eagle        |                   |                   |                        |                   | 2                    |                   |                    | 1                |                     |                     |                   |                     |                         |                                |                     |
| Bald Eagle          |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Marsh Hawk          |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Prairie Falcon      |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Pigeon Hawk         |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Ruffed Grouse       |                   |                   |                        |                   | 1                    |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Sharp-tailed Grouse | 3                 |                   |                        | 15                | 4                    | 8                 | 1                  |                  |                     | 8                   |                   | 4                   |                         | 35                             |                     |
| Ring-neck Pheasant  |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Gray Partridge      | 9                 | 7                 |                        | 7                 |                      |                   |                    | 11               |                     |                     |                   | 22                  |                         | 2                              | 10                  |
| Am Coot             |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Rock Dove           |                   | 71                |                        |                   | 13                   |                   |                    |                  |                     |                     | 2                 | 15                  | 12                      | 11                             | 6                   |
| Great-horned Owl    |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     | 2                 |                     |                         |                                |                     |
| Snowy Owl           |                   | 1                 |                        |                   | 1                    |                   | 1                  |                  |                     |                     |                   |                     |                         | 2                              |                     |
| Short-eared Owl     |                   |                   |                        |                   | 1                    |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Pileated Woodpecker |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Hairy Wdpkr.        | 1                 |                   |                        |                   | 1                    |                   | 1                  |                  | 1                   |                     | 1                 |                     |                         |                                | 1                   |
| Downy Wdpkr.        | 1                 |                   |                        | 1                 |                      |                   |                    |                  |                     | 1                   | 1                 |                     |                         |                                |                     |
| N.3-t. Wdpkr.       |                   |                   |                        |                   |                      |                   |                    |                  | 1                   |                     |                   |                     |                         |                                |                     |
| Horned Lark         |                   |                   |                        | 21                |                      |                   |                    | 14               |                     |                     | 3                 |                     |                         |                                |                     |
| Gray Jay            |                   |                   |                        |                   |                      |                   |                    |                  | 3                   |                     |                   |                     |                         |                                |                     |
| Blue Jay            |                   |                   |                        |                   | 2                    |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Black-billed Magpie | 2                 | 24                | 2                      | 24                | 17                   | 31                | 22                 | 7                |                     | 7                   | 53                | 9                   | 12                      | 10                             | 2                   |
| Common Raven        |                   |                   |                        |                   |                      |                   |                    |                  | 1                   | 4                   |                   |                     |                         |                                |                     |
| Bl-cap Chickadee    | 4                 |                   | 2                      | 2                 | 19                   |                   | 3                  | 1                | 2                   | 6                   | 11                | 3                   | 1                       |                                | 2                   |
| Boreal Chickadee    |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| W-b. N'hatch        |                   |                   | 1                      |                   | 1                    |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| R-b. N'hatch        |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Robin               |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| R-c Kinglet         |                   | 1                 |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Boh. Waxwing        |                   | 183               | 78                     | 5                 | 68                   |                   |                    |                  |                     |                     | 42                |                     |                         |                                |                     |
| Ced. Waxwing        |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Northern Shrike     |                   |                   |                        |                   | 2                    |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Starling            |                   |                   |                        |                   |                      |                   |                    |                  |                     | 7                   |                   |                     |                         |                                |                     |
| House Sparrow       | 20                | 2332              | 363                    | 115               | 186                  |                   | 100                | 90               |                     | 21                  | 80                | 250                 | 104                     | 100                            | 300                 |
| Rusty Blkbd.        |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Ev. Grosbeak        | 14                | 14                |                        | 48                | 28                   |                   |                    |                  |                     |                     | 57                |                     |                         |                                |                     |
| Pine Grosbeak       |                   | 60                |                        | 21                | 20                   |                   | 14                 | 1                |                     |                     | 11                | 13                  |                         |                                | 1                   |
| Hoary Redpoll       |                   |                   |                        | 10                |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Common Redpoll      |                   | 4                 |                        | 1164              | 86                   | 35                | 50                 |                  | 1                   |                     | 1                 |                     |                         |                                |                     |
| Pine Siskin         |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Red Crossbill       |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Slate-colored Junco |                   | 2                 |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Tree Sp.            |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Harris' Sp.         |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Lapl. Longspur      |                   |                   |                        |                   |                      |                   |                    |                  |                     |                     |                   |                     |                         |                                |                     |
| Snow Bunting        |                   |                   |                        | 9                 | 21                   |                   | 35                 | 1                |                     | 51                  | 19                |                     | 10                      |                                |                     |

BROADVIEW, Dec. 17; 95 mi. by car in 7 hrs., temp. 26°, calm; 19 species, 479 individuals plus 1 unidentified accipiter. (Add: Horned Lark, 7, Dec. 31; Common Raven, 2, Dec. 31). — David Chaskavich, Donald Weidl.

CRAVEN, Dec. 26; 25 mi. by car in 2-1/2 hrs. and 1/2 hour on foot, temp. 40° clear, no wind. 2 in. snow; 3 species, 74 individuals. — Tom Donald, Bob Rafuse.

DALMENY, Dec. 26; 4 hrs. on foot, temp. 17°, partly cloudy light E wind; 9 species, 227 individuals. — Brian Gilbert (compiler) and Loyd Sperling.

DILKE, Dec. 31; 34 mi. by car in 2 hrs and 3 hrs. about the yard, temp. -3° to 3°, overcast, wind N 5 mph, 12 in. snow; 8 species, 126 individuals. (Add: Snowy Owl, 1, Dec. 19; Common Redpoll, 2, Dec. 16). — Boswell Belcher (compiler), Margaret Belcher, Mr. and Mrs. S. R. Belcher.

ELDORADO, Dec. 28; within 1/2 mile of house, temp. 5° to 10°; 6 species, 9 individuals. — Mrs. E. A. Middleton.

ENDEAVOUR, Dec. 26; around house, and 10 miles by car, temp. -10° to 10°, cloudy, clearing at mid day, calm; 8 species, 105 individuals. (Add: Great Horned Owl, 1, Dec. 24; Gray Jay, 2, Dec. 24; Common Redpoll, 7, Dec. 25.) — William Haras.

FEUDAL, Dec. 26; temp. 40°, partly cloudy, wind NW 15-20 mph, 3 in. snow; 13 species, 283 individuals. — Don and Wayne Renaud.

FILLMORE, Dec. 26; 6 mi. by car, 2-1/2 mi. on foot, temp. 20° to 30°, sunny, wind light, 6-7 in. snow; 7 species, 316 individuals. (Add: Snowy Owl, 1, Dec. 24; Common Redpoll, 11, Dec. 24). — Mrs. Nick Bogdan (compiler), Nick Bogdan, Ken Elder, Gilbertha Liebelt, Larry and Marie Wiggins.

GARDINER DAM, Dec. 20; temp 20°, clear, wind NW 0-5 mph, 3 in. snow; 9 species, 389 individuals. — Don, Harvey and Wayne Renaud.

GLAMIS-BARBER LAKE, Dec. 26; 12 mi. by car and 3 mi. on foot in 3 hrs., temp 35° to 41°, wind SW 10-15 mph, 5-6 in. snow, overcast; 6 species, 170 individuals. (Add: Bohemian Waxwing 15, Dec. 24; Snow Bunting, 5, Dec. 24). — Brian and Grev Jones (compilers), Chester Walker.

GRENFELL, Dec. 24; 6 mi. by car and around yard, temp. 10°, 3 in. snow; 6 species, 322 individuals. (Add: Ruffed Grouse, 1, Dec. 20; Sharp-tailed Grouse, 6, Jan. 1; Snow Bunting, 15, Jan. 2). — Betty and John Hubbard.

HARRIS, Dec. 17; temp. 18° to 12°, mostly clear, wind E 0 to 5 mph, 4 in. snow; 25 species, 3405 individuals. (Add: ?falcon, Dec. 25; Northern Shrike, 1, Dec. 31; Slate-coloured Junco, 1, Dec. 16). — Ron Bobowski, Bob Godwin, Bernie Gollop, Madelaine Gollop, Wayne Harris, Dale Hjertaas, David, Mary and Stuart Houston, Sheila Lamont, Ken Lunbis, Don Renaud, Wayne Renaud (compiler), Stan Shadick, Jim Wedgwood.

HEPBURN, Dec. 22; temp. 10°; 3 species 40 individuals. — P. Siemens.

KENASTON, Dec. 17; 1 hour on foot and while working about yard and 13 mi. by car, temp. 15°, wind light; 7 species, 88 individuals. (Add: Horned Lark, 7, Dec. 19; Black-capped Chickadee, 1 Dec. 24; Bohemian Waxwing, 12, Dec. 18; Evening Grosbeak, 7, Dec. 26; Pine Grosbeak, 3, Dec. 27; Common Redpoll, 50, Dec. 28; Snow Bunting, 200, Dec. 22). — P. Lawrence Beckie.

KINDERSLEY, Dec. 24; 29 mi. by car and 1/4 mi. on foot around yards, temp. 2°, wind light, scattered cloud; 7 species, 190 individuals. (Add: Sharp-tailed Grouse, 4, Dec. 31; Bohemian Waxwing, 14, Dec. 19). — Jean and Lane Harris, Edith Gardiner.

KUTAWAGAN LAKE, (centered 12 mi. N of Semans), Dec. 31; 52 mi. by car in 3 hrs and 3-1/4 mi. on foot in 1-1/2 hrs. temp. -10° to 1°, foggy, clearing, wind NE 0-5 mph, 7 in. snow; 5 species, 187 individuals. (Add: Gray Partridge, 5, Dec. 26; Great Horned Owl, 2, Dec. 22; Horned Lark, 1, Dec. 16). — Wayne Harris.

LAST MOUNTAIN LAKE, (centered 8 mi. SW of Nokomis), Jan. 1; 46 mi. by car in 3 hrs and 3 mi. on foot in 1-1/2 hrs, temp. 1° to 15°, sunny becoming overcast, wind S 10-15 mph, 9 in. snow; 9 species 595 individuals. (Add: Common Redpoll, 3, Dec. 27). — Wayne Harris.

LUSELAND, Dec. 24; 130 mi. by car in 3 hrs and 5 mi. on foot in 2 hrs, temp. 10° to 15°, sunny, wind NW 0-5 mph, 2-3 in. snow; 16 species 445 individuals. (Add: Horned Lark, 3, Dec. 23; Evening Grosbeak, 8, Dec. 27). — Kerry and Kim Finley, Bill Holton.

MELVILLE, Dec. 26; around the city; 10 species, 86 individuals. (Add: Downy Woodpecker.) — Kay Anweiler.

MONTMARTRE, Dec. 23; 14 mi. on foot in 6 hrs., temp. 0° to 10°, overcast then clearing, wind NW 5 mph; 7 species, 183 individuals. (Add: Sharp-tailed Grouse, 21, Dec. 27; Rock Dove, 1, Jan. 1; Snowy Owl, 1, Dec. 16; Rusty Blackbird, 4, Dec. 30). — K. Langelier.



|                      | Harris<br>Dec. 17 | Hepburn<br>Dec. 22 | Kenaston<br>Dec. 17 | Kindersley<br>Dec. 24 | Kutawagan Lake (12 mi.<br>N. of Semans) Dec. 31 | Last Mountain Lake (8 mi.<br>S.W. of Nokomis) Jan. 1 | Luseland<br>Dec. 24 | Melville<br>Dec. 26 | Montmartre<br>Dec. 23 | Moose Jaw<br>Dec. 26 | Nipawin<br>Dec. 26 | Outlook<br>Dec. 16 | Leader<br>Dec. 19 | Piapot<br>Dec. 26 | Prince Albert<br>Dec. 28 | Ranch Lake (12 mi. E.<br>of Pleasantdale) Dec. 30 |
|----------------------|-------------------|--------------------|---------------------|-----------------------|---|--|---------------------|---------------------|-----------------------|----------------------|--------------------|--------------------|-------------------|-------------------|--------------------------|---|
| White Swan           |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Canada Goose         |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Willard              |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Whitethroat          |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Whitethroated Duck   |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Lesser Scaup         |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Common Goldeneye     |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Hooded Merganser     |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Sharp-shinned Hawk   | 1                 |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          | 2   |
| Golden Eagle         |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   | 2                 |                          |   |
| Red-tailed Hawk      |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Sharp-shinned Hawk   | 1                 |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Common Falcon        |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Common Hawk          |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     | 2                     |                      | 1                  |                    |                   |                   |                          | 4   |
| Sharp-tailed Grouse  | 386               |                    | 15                  |                       | 1   | 17   | 9                   |                     |                       | 14                   | 1                  |                    |                   | 5                 |                          |   |
| Long-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     | 1                     | 1                    |                    |                    | 14                | 4                 |                          |   |
| Partridge            | 34                |                    | 8                   |                       |   | 48   | 10                  |                     |                       | 5                    |                    |                    |                   | 6                 |                          | 22  |
| Coot                 |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Rock Dove            | 52                |                    | 8                   |                       | 24  | 16   | 21                  |                     |                       | 219                  | 1                  |                    |                   |                   | 59                       | 26  |
| Great-horned Owl     | 9                 |                    |                     |                       |   | 1  | 3                   |                     |                       | 1                    |                    |                    |                   |                   |                          | 4   |
| Screech Owl          | 13                |                    | 1                   | 1                     |   | 3  | 1                   |                     |                       | 6                    |                    | 1                  |                   |                   |                          |   |
| Great-eared Owl      |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 2                 |                    |                     |                       |   |  |                     |                     | 2                     |                      | 4                  |                    |                   | 1                 | 2                        | 2   |
| Ring-necked Pheasant | 5                 |                    | 1                   |                       |   |  | 1                   |                     |                       | 1                    | 3                  |                    |                   | 1                 | 2                        | 6   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 30                |                    |                     |                       |   |  |                     |                     |                       | 1                    |                    | 12                 |                   |                   |                          | 5   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      | 1                  |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 1                 |                    |                     |                       |   |  | 1                   |                     |                       |                      | 4                  |                    |                   | 1                 |                          |   |
| Ring-necked Pheasant | 337               | 2                  | 5                   | 5                     | 12  | 17   | 68                  | 1                   | 19                    | 43                   | 56                 | 4                  | 22                | 15                | 2                        | 19  |
| Common Raven         | 2                 |                    |                     |                       |   |  |                     |                     |                       |                      | 23                 |                    |                   |                   | 22                       |   |
| Ring-necked Pheasant | 36                |                    |                     | 2                     |   |  | 2                   | 2                   | 4                     | 9                    | 4                  | 1                  | 2                 | 13                | 1                        | 6   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 1                 |                    |                     |                       |   |  |                     | 1                   |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       | 1                    |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 951               |                    |                     | 3                     |   |  | 25                  | 12                  |                       | 237                  | 44                 |                    | 28                | 44                | 115                      |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   | 1  |                     |                     | 1                     | 1                    |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 14                |                    |                     |                       |   |  | 3                   |                     |                       | 126                  | 8                  |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 1158              |                    | 50                  | 76                    | 137   | 220  | 120                 | 50                  | 154                   | 912                  | 93                 | 6                  | 50                | 30                | 72                       | 355   |
| Ring-necked Pheasant | 14                |                    |                     |                       |   |  |                     |                     |                       |                      | 1                  |                    |                   |                   |                          | 2   |
| Ring-necked Pheasant | 94                |                    |                     |                       |   |  |                     | 14                  |                       | 2                    | 202                |                    |                   |                   | 49                       |   |
| Ring-necked Pheasant | 43                | 8                  |                     |                       |   |  | 14                  | 6                   |                       | 5                    | 11                 |                    |                   |                   | 17                       | 45  |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  | 3                   |                     |                       | 8                    |                    |                    |                   |                   |                          | 2   |
| Ring-necked Pheasant | 183               | 30                 |                     | 3                     |   |  | 38                  |                     |                       | 35                   | 615                |                    |                   |                   | 40                       | 45  |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       | 50                   |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       | 5                    |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 1                 |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 1                 |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant |                   |                    |                     |                       |   |  |                     |                     |                       |                      |                    |                    |                   |                   |                          |   |
| Ring-necked Pheasant | 36                |                    |                     | 100                   | 13  | 272  | 126                 |                     |                       |                      | 80                 |                    |                   | 100               |                          | 1163  |

MOOSE JAW, Dec. 26; 112 mi. by car and 6 mi. on foot, temp. 38°, sunny, wind SW 10-15 mph, little snow; 21 species, 1682 individuals (Add: Golden Eagle, 1, Dec. 31; Pigeon Hawk, 1, Dec. 31). — Anna Davis Doug Francis, Ruth Hillings, Pat Kern, Leith Knight, (compiler) Moray Lewis, Molly Ritchie, Dave Robinson, Alice and Gordon Silversides, Inez Simmons, Dick Springett and Jean Thomson.

NIPAWIN, Dec. 26; temp. 20°, no wind; 18 species, 1152 individuals. — Terry Gingard, Vern Gunnlaugson, Gladys and Stan Riome (compilers), Mrs. Max Robin.

OUTLOOK, Dec. 16; 60. by car, temp 12°, sunny, light wind, 5 in. snow; 5 species, 24 individuals (Add: Bohemian Waxwing, 80, Dec. 27). — Harold Kvinge.

LEADER, Dec. 19; 2 hours about the ranch, temp 40°, clear, 3 in. snow; 5 species, 116 individuals. (Add: Rock Dove, 8, Dec. 24). — Daisy Meyers.

PIAPOT, Dec. 26; temp. 30°; 12 species, 222 individuals. — Jim Bennetto, Betty Mann, Robert Mann, Don Pearce, Helen Schuler, Lyall Wagner.

PRINCE ALBERT, Dec. 28; 11 species, 381 individuals. (Add: Ruffed Grouse, 1, Dec. 23). — Mr. and Mrs. Ansgar Aschim, Mr. and Mrs. Bert Gordon, David Surkan.

RANCH LAKE (centered 12 mi. E. of Pleasantdale), Dec. 30; 107 mi. by car in 6 hrs. and 4-1/2 mi. on foot in 2 hrs., temp. -14° to -4°, foggy, wind SW 0-10 mph, 11 in. snow; 16 species, 1708 individuals. (Add: Common Raven 1, Dec. 22; Snowy Owl, 1, Dec. 25). — Greta Harris, Wayne Harris (compiler), Elaine Rice.

RAYMORE, Dec. 26; 128 mi. by car in 8 hrs. and 2 mi. on foot in 1 hour, plus observations at feeder, temp. 21° to 38°, overcast, wind SW 0-13 mph, 7 in. snow; 18 species, 2337 individuals. (Add: Snowy Owl, 1, Dec. 22; Evening Grosbeak, 2, Jan. 1). — Charles, Greta and Wayne Harris.

REGINA, Dec. 26; 509 mi. by car in 46 hours and 54 mi. on foot in 31 hrs, temp. 29° to 38°, high clouds clearing later, wind SW 5-15 mph., 3 in. snow; 32 species, 5395 individuals. (Add: Goshawk, 1, Dec. 20; Barred Owl, 1, Dec. 31; Yellow-shafted Flicker, 1, Dec. 21; Common Crow, 1, Dec. 23). — Jessie Bailey, Margaret Belcher, Al and Betty Binnie, Tom Burns, Betty Cruickshank, Ken Dickson, Dick DuWors, Lucy Eley, George Ferguson, Wayne Gemmell, Doug Gilroy, Jim Hines, Roger and Pat Howard, Jim and Shirley Jowsey, Darlene Kauk, Bob Kreba, George Ledingham, Sandra McNeil, Helen Morrison, Eric Olsen,

Patrick Pettit, John Pilling, Connie Pratt, Brian Rainey, Maureen Rever, Joe Roberts, Paul Rump, R. Lorne Scott (compiler), John and Carol Spencer, Frank Switzer, Dorothy Tegart, Elisabeth Wagner, Jeanie Wagner, Janie Wilhelm, Rita Wilhelm, Don Young.

ROSETOWN, Dec. 19; temp 20°, light cloud, wind light, 3 in. snow; 6 species, 457 individuals. (Add: Snowy Owl, 1, Dec. 27). — Annie Harvey, Wayne Renaud.

SASKATOON, Dec. 26; 224 mi. by car in 2 hrs., and 55 mi. on foot in 43 hrs., temp. 20 to 34°, wind SW 3-22 mph, 2 in. snow; 2 species, 6161 individuals. (Add: Short-eared Owl, 1, Dec. 20; Yellow-shafted Flicker, 2, Dec. 27; Common Raven, 2, Dec. 24; Pine Siskin, 7, Dec. 27; Red Crossbill, 15, Dec. 20; White-winged Crossbill, 2, Dec. 22). — Joan Ashenhurst, Bob, Jeff and Joan Besant, Bernard, Ed, Raymond and Timothy Bishop, Andre Bouthillette, Don Buckle, Rick Buchner, Pern Cordery, Joseph E. Daly, Ray and Molly Denson, John and Betty Gerrard, Bernie and Madeleine F. Gollop, Jack and Louise Greaves, Scott Hale, Danny Heffernan, Stuart, Mary, Dave and Don Houston, Dr. C. J. Houston, Mary and Tom Kearney, Carolyn and Colin Kindrachuk, Don Elizabeth, Joanne, Margaret and Norma McRobbie, Greg Michalenko, Alan Moulin, Arnold Nijssen, Stuart Rasmussen, Adam Schmidt, David Schmidt, John and Stan Shadick, Les Shand, J. A. Slimmon, Alan R. Smith, Gary Smith, Peter Tassie, W. A. Whitfield, Elmer and Winnie Wright.

SOMME, Dec. 26; 25 mi. by car and on foot, temp. 15°; 14 species, 92 individuals. (Add: Evening Grosbeak, 7, Dec. 24; Hoary Redpoll, 1, Dec. 25; Snow Bunting, 80, Dec. 25). — B., D., E. and R. Hooper.

SORENSEN BEACH (Last Mountain Lake), Dec. 25; 6 mi. in 5 hours on foot, temp 1 to 20°, wind NW 5-15 mph, 2-3 in. snow; 12 species, 123 individuals. — Dr. C. H. Fiedler, Dr. Hanna Ueberschar, Dr. Heinz Ueberschar.

SPIRIT LAKE, Dec. 26; 57 mi. by car in 1 hrs and 2 mi. on foot in 1-1/2 hrs, temp. 1 to 28°, mostly clear, wind light, 8 in. snow; 15 species, 260 individuals. (Add: Snowy Owl, 1, Dec. 18; Common Raven, 11, Dec. 18; Bohemian Waxwing, 9, Dec. 23; Northern Shrike, 1, Dec. 27; Evening Grosbeak, 3, Dec. 25). — Bill and Joyce Anaka, M. Gunn.

SPRING VALLEY, Dec. 31; 34-1/2 mi. by car and 13 mi. by skidoo and 2-1/2 mi. on foot in 7-1/2 hrs., temp. 3°, sunny and clear then overcast with wind 25-30 mph, 4 in. snow; 10 species, 943 individuals. (Add: Golden Eagle, 1, Dec. 19; Prairie Falcon,



|                 | Raymore<br>Dec. 26 | Regina<br>Dec. 26 | Rosetown<br>Dec. 19 | Saskatoon<br>Dec. 26 | Somme<br>Dec. 26 | Sorenson Beach; Last<br>Mt. Lake; Dec. 25 | Spirit Lake<br>Dec. 26 | Spring Valley<br>Dec. 31 | Squaw Rapids<br>Dec. 31 | Val Marie<br>Dec. 28 | Waseca<br>Dec. 30 | Wauchope<br>Dec. 24 | White Bear<br>Dec. 27 | Wynyard<br>Dec. 24 | Yellow Creek<br>Dec. 26 | No. of Counts |
|-----------------|--------------------|-------------------|---------------------|----------------------|------------------|---|------------------------|--------------------------|-------------------------|----------------------|-------------------|---------------------|-----------------------|--------------------|-------------------------|---------------|
| Swan            |                    | 3                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| Canada Goose    |                    | 450               |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| Hard            |                    | 350               |                     | 35                   |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 3             |
| Head            |                    | 1                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| Wassback        |                    | 1                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| ser Scaup       |                    | 7                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| mon Goldeneye   |                    | 4                 |                     | 65                   |                  |   |                        |                          | 7                       |                      |                   |                     |                       |                    |                         | 5             |
| ded Mergr.      |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| hawk            |                    |                   |                     | 3                    | 2                | 1   | 1                      |                          |                         |                      |                   |                     |                       |                    |                         | 6             |
| den Eagle       |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 3             |
| d Eagle         |                    |                   |                     |                      |                  |   |                        |                          | 1                       |                      |                   |                     |                       |                    |                         | 1             |
| sh Hawk         |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| rie Falcon      |                    | 1                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| on Hawk         |                    | 1                 |                     | 6                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| ed Grouse       | 1                  | 3                 |                     | 6                    |                  | 1   | 1                      |                          |                         |                      |                   |                     |                       |                    | 2                       | 10            |
| p-tailed Grouse | 45                 | 14                |                     | 177                  |                  | 6   | 1                      | 10                       |                         |                      |                   | 11                  |                       | 9                  | 3                       | 25            |
| g-neck Pheasant |                    |                   |                     | 15                   |                  |   |                        |                          |                         | 14                   |                   |                     |                       |                    |                         | 6             |
| y Partridge     | 19                 | 32                |                     | 66                   | 8                | 16  | 12                     | 85                       |                         |                      |                   |                     | 18                    |                    |                         | 22            |
| Coot            |                    | 3                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| k Dove          | 105                | 361               | 24                  | 678                  |                  |   |                        | 43                       |                         |                      |                   | 23                  |                       | 6                  | 20                      | 24            |
| t-horned Owl    | 5                  | 5                 |                     | 1                    | 1                | 2   | 1                      | 1                        |                         |                      |                   |                     |                       |                    | 2                       | 14            |
| wy Owl          |                    | 5                 |                     | 5                    |                  |   |                        | 1                        |                         |                      |                   |                     |                       |                    |                         | 14            |
| t-eared Owl     |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| ted Wdpkr.      |                    |                   |                     |                      | 1                |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| y Wdpkr.        | 2                  | 2                 |                     | 13                   | 2                |   | 8                      |                          |                         |                      |                   | 1                   |                       |                    |                         | 18            |
| ny Wdpkr.       | 1                  | 3                 |                     | 12                   | 1                |   | 9                      |                          |                         |                      | 1                 | 4                   |                       | 1                  | 1                       | 21            |
| t. Wdpkr.       |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| ed Lark         |                    |                   |                     | 5                    |                  | 9   |                        | 111                      |                         |                      |                   |                     |                       |                    |                         | 10            |
| y Jay           |                    |                   |                     |                      | 6                |   | 1                      |                          |                         |                      |                   |                     |                       |                    |                         | 4             |
| y Jay           | 1                  |                   |                     | 14                   | 1                |   |                        |                          |                         |                      | 5                 |                     |                       |                    |                         | 9             |
| k-billed Magpie | 80                 | 89                | 7                   | 288                  | 3                | 5   | 22                     | 21                       | 6                       | 6                    |                   | 13                  | 19                    | 16                 | 10                      | 44            |
| mon Raven       | 1                  |                   |                     |                      | 7                |   |                        |                          | 7                       |                      |                   |                     |                       |                    |                         | 8             |
| ap Chickadee    | 32                 | 51                |                     | 157                  | 4                | 4   | 32                     |                          |                         | 1                    | 12                | 12                  |                       | 6                  | 9                       | 35            |
| al Chickadee    |                    |                   |                     |                      | 1                |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| N'hatch         |                    |                   |                     |                      |                  |   | 3                      |                          |                         |                      |                   |                     |                       |                    |                         | 5             |
| N'hatch         |                    |                   |                     | 2                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| n               |                    |                   |                     | 7                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| Kinglet         |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| Waxwing         | 23                 | 727               | 59                  | 1116                 |                  | 8   |                        |                          |                         | 1                    | 14                |                     |                       |                    | 20                      | 22            |
| Waxwing         |                    | 3                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| hern Shrike     | 1                  |                   |                     | 4                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 6             |
| ing             |                    | 28                | 4                   | 16                   |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 8             |
| se Sparrow      | 1911               | 3029              | 353                 | 2820                 | 35               | 35  | 94                     | 505                      |                         | 10                   | 26                | 254                 |                       | 306                | 500                     | 41            |
| y Blkbd.        | 2                  | 2                 |                     | 6                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 6             |
| Grosbeak        |                    | 50                |                     | 116                  |                  | 4   |                        |                          |                         |                      | 5                 |                     |                       | 2                  |                         | 15            |
| Grosbeak        | 25                 | 59                |                     | 250                  | 20               | 32  | 12                     |                          | 11                      | 5                    | 5                 | 44                  |                       | 24                 |                         | 27            |
| y Redpoll       |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 4             |
| mon Redpoll     | 23                 | 77                |                     | 185                  |                  |   | 11                     | 46                       |                         | 3                    |                   |                     | 19                    |                    |                         | 22            |
| Siskin          |                    | 1                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| Crossbill       |                    | 3                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| -colored Junco  |                    | 3                 |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 2             |
| Sp.             |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| s' Sp.          |                    |                   |                     |                      |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| Longspur        |                    |                   |                     | 6                    |                  |   |                        |                          |                         |                      |                   |                     |                       |                    |                         | 1             |
| v Bunting       | 60                 | 27                | 10                  | 87                   |                  |   | 52                     | 120                      | 200                     |                      | 49                | 311                 |                       | 188                | 40                      | 26            |



Dec 23; Sparrow Hawk, 1, Dec. 17; Bohemian Waxwing, 4, Dec. 16). — Allan Bogdan, Mr. and Mrs. Nick Bogdan, Gilbertha Liebelt.

SQUAW RAPIDS, Dec. 31; 4 hrs, temp. 5°, heavy hoar frost; 6 species 232 individuals. — David and Stan Riome.

VAL MARIE, Dec. 28; 30 mi. by car and 2 mi. on foot, temp. 25°, snowing, no wind, very little snow on ground; 7 species, 40 individuals. (Add: Sharp-tailed Grouse, 6, Dec. 29; Gray Partridge, 9, Dec. 18; Rock Dove, 7, Dec. 30; Great Horned Owl, 1, Dec. 18; Long-eared Owl, 1, Dec. 26; Short-eared Owl, 1, Jan. 1; Horned Lark, 30, Dec. 20; Snow Bunting, 300, Dec. 17). — J. David Chandler.

WASECA, Dec. 30; around 2 farm yards and on foot 3 mi. along the creek, temp. 20°, strong E wind; 8 species, 117 individuals. (Add: Ruffed Grouse, 14; Sharp-tailed Grouse, 6, Dec. 27; Hairy Woodpecker, 1; Black-billed Magpie, 1, Dec. 24; Common Raven, 7, Dec. 27). — Christine Pike (compiler), Sheila and Tommy Lamont.

WAUCHOPE, Dec. 24; 21 mi. by car in 3 hrs and 3 mi. on foot in 2-1/2 hrs plus 1-1/2 hrs about yard, temp. 10° to 22°, wind S 15-0 mph, 4 in. snow; 9 species, 673 individuals. (Add: Gray Partridge, 4, Dec. 30; Boreal Chickadee, 1, Dec. 27; Evening Grosbeak, 11, Dec. 31; Common Redpoll, 3, Jan. 1). — Dale Hjertaas.

WHITE BEAR, Dec. 27; temp. 30°, cloudy, no wind, little snow, 4 mi. by car and 3 mi. on foot; 3 species, 56 individuals. (Add: Evening Grosbeak, 6, Dec. 21) — Leroy

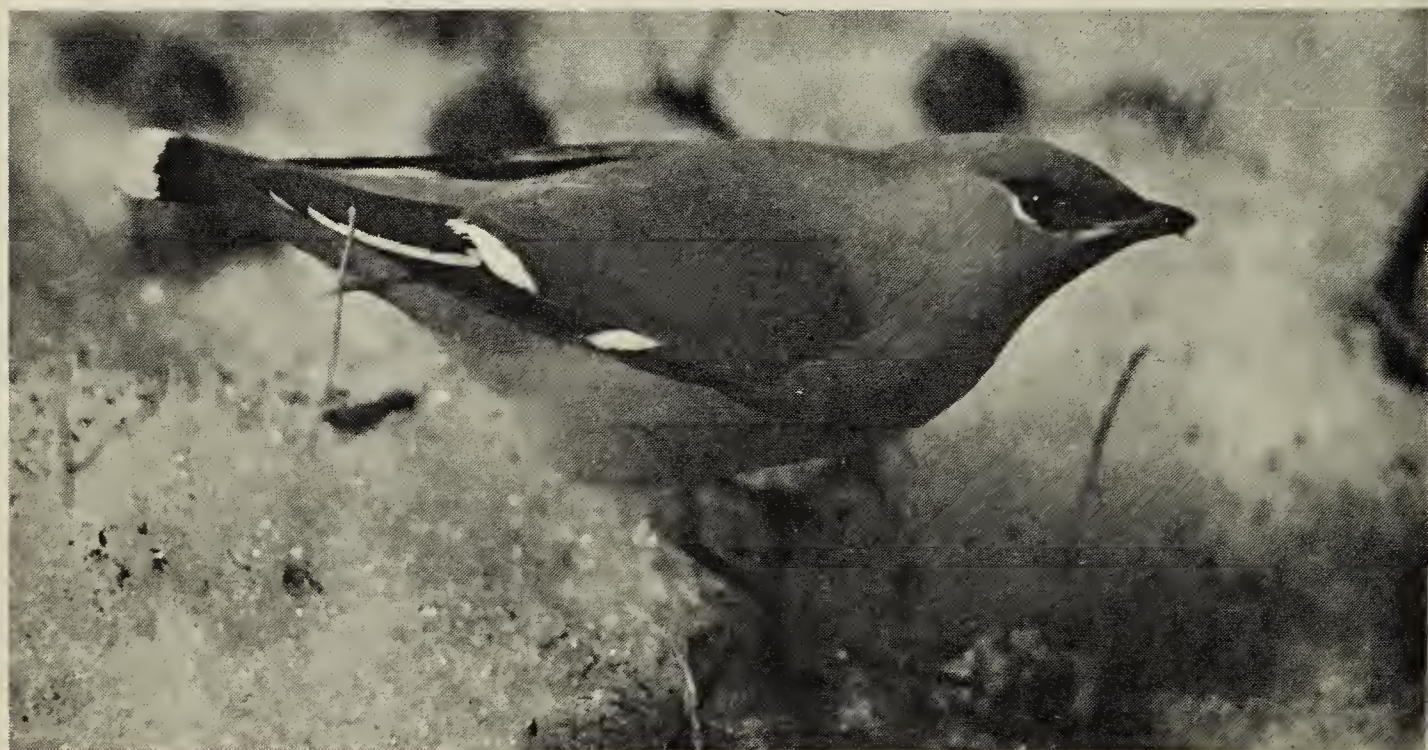
Clark, David and Douglas Gunn, Gerald, Laine, Gary and Sig Jordheim.

WYNYARD, Dec. 24; 47 mi. by car and around yard, temp. 10°; calm, light overcast; 9 species, 558 individuals. (Add: Hairy Woodpecker, 1, Dec. 17) — John Gulley, Sherry Kachur.

YELLOW CREEK, Dec. 26; 6 mi. by car and 2 mi. on foot in 3 hrs, temp. 30°, clear, no wind, 6 in. snow; 10 species, 607 individuals. — Gaylene Mazur, Rosemary Nemeth.

STETTLER, Alta. Dec. 24; 40 mi. by car, 3 hrs. by snow shoe and around yard, temp. 22°; partly sunny, calm, 6 in. snow; 10 species, 139 individuals. Mallard, 31; Bald Eagle, 1; Pileated Woodpecker, 1; Hairy Woodpecker, 1; Blue Jay, 2; Black-billed Magpie, 13; Black-capped Chickadee, 11; House Sparrow, 75; Evening Grosbeak, 3; Pine Grosbeak, 1. (Add: Goshawk, 1, Dec. 26; Golden Eagle, 1, Dec. 18; Ruffed Grouse, 2, Dec. 27; Sharp-tailed Grouse, 2, Dec. 21; Gray Partridge, 6, Dec. 29; Great Horned Owl, 1, Dec. 27; Snowy Owl, 1, Dec. 19; Downy Woodpecker, 1, Dec. 17; Snow Bunting, 200, Dec. 22). — Graeme Greenlee, Pat Greenlee, Lloyd Lohr (compiler) Lyman Matthews.

FORT SMITH, N.W.T., Dec. 27; 50 mi. by car in 3 hrs., temp. -5°; overcast with light snow falling, calm, 1-1/2 feet of snow; 7 species 227 individuals. Rock Dove, 30; Great Gray Owl, 1; Gray Jay, 2; Common Raven, 99; Starling, 1; House Sparrow, 14; Common Redpoll, 80. (Add: Pine Grosbeak, 11, Dec. 21). — Ernie, Elsie, Pamela and Jonathan Kuyt.



Bohemian Waxwing

Fred Lahrman



# COMMON GOLDENEYES and the Emma Lake Nest Boxes

By MAUREEN REVER and RICHARD S. MILLER

The Common Goldeneye or "Whistler", like the Wood Duck and the Bufflehead, nests in holes in trees. The nest site is often an abandoned woodpecker hole but may be any of a variety of natural cavities, such as the hollowed out top of a broken tree trunk. Goldeneye nests have been found as high as 60 feet above the ground but are more commonly built from 6 to 30 feet high.<sup>2</sup> There is no apparent preference for a particular species of tree; one female goldeneye even nested successfully in a house chimney at Camrose, Alberta.<sup>7 6</sup> The nest is lined with down which the female plucks from her breast, increasing the amount with each egg that is laid. Because of a tendency for more than one female to lay eggs in the same nest, it is difficult to determine the normal clutch size of a single hen and there is considerable variation in the clutch size as reported for this species.<sup>2 3</sup> An average clutch of 10 for 53 nests in which incubation was completed was reported from Finland, and most authors report a range of 6 to 12 for a normal clutch.<sup>3</sup> There are, however, several records of nests containing 18 to 20 eggs and some cases of 30 and even 40 eggs in a single nest. A nest of 30 eggs in which 12 hatched was found in Russia, but P. Grenquist found that large clutches were usually "dump nests", nests in which more than one female laid eggs that were unin-cubated.<sup>1 3</sup> Dump nesting occurs in several species of waterfowl, but little is known about its evolutionary origins or its ecological consequences. It is presumed by some authors to be related to competition, especially among young females, for a limited number of nest sites.<sup>6 3</sup> The incubation period for goldeneyes has not been accurately

measured, but it is probably between 26 and 30 days.<sup>9</sup>

The numbers of many hole-nesting species are probably controlled by the number of available nest sites, and observations of intense competition for nest cavities among goldeneyes indicate that this may be a limiting factor in this species.<sup>2 6 3</sup> It would appear, therefore, that artificial nest boxes might increase the nesting success and population size of goldeneyes, as well as provide a convenient means of studying the reproductive ecology of an interesting but little understood species.



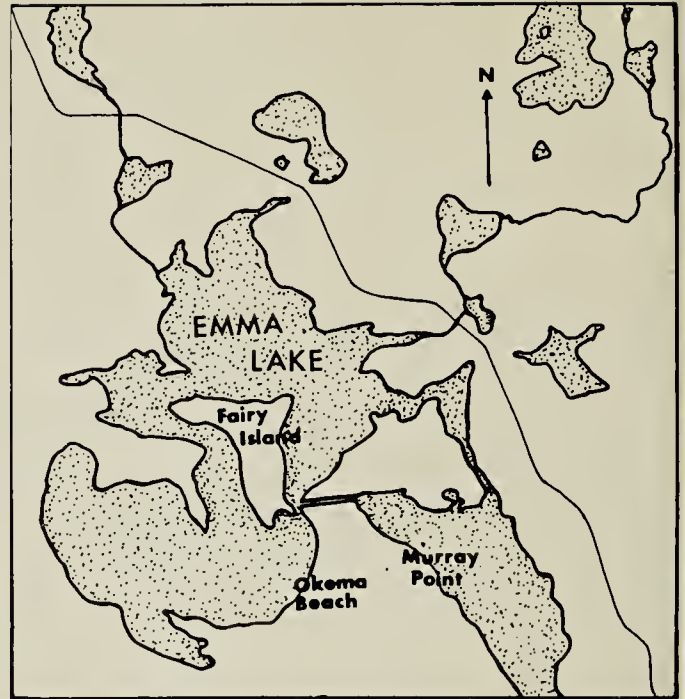
\*Biology Dept., University of Saskatchewan, Saskatoon, and Brantford, Connecticut



There is a long history of the use of nest boxes for goldeneyes in Scandinavia. Linnaeus, in his tour of Lapland in 1753, was the first to call attention to the tradition of the natives in northern Finland of placing nest boxes in trees to attract goldeneyes, Goosanders and Smews. In Finland the boxes are called "Tylla", which is apparently derived from "Fogel Tulle", a word that was once used to refer to rolled pieces of birch bark that were used as floats for fish nets.<sup>6</sup> This suggests that the early nest boxes that were used by the Finns were merely rolled pieces of birch bark placed in trees, although the boxes that are currently used throughout Scandinavia are usually hollowed sections of tree trunk about 2 feet long with a hole in the side large enough to admit a man's hand. The box is labelled with the owner's name and is hung by a peg on a tree facing the nearest water. It is positioned so that there are no branches or other obstructions in front of the entrance hole, as the hen goldeneye flies directly into the nest without landing. With progressive deforestation in Finland and other parts of Scandinavia and the Soviet Union, Goldeneyes have become increasingly dependent on nest boxes.

In view of the many different kinds of natural sites that goldeneyes have been found to use, it is not surprising that they will also accept a variety of artificial nest boxes. Goldeneyes have used nest baskets placed in willows for Mallards and Philip Oulds has used nest boxes constructed from 5-gallon paint cans at Delta, Manitoba.<sup>8</sup> The nest cans used by Oulds are 24 inches high and 11 inches in diameter with a 4-inch hole 3 inches from the top of the can; the interior is painted with auto undercoating to provide a foothold for the ducklings when they leave the nest. Observations by the junior author at Delta, Manitoba, in 1972 showed that 10 of 13 nest cans were occupied by goldeneyes and that at least seven contained normal clutches.

In the summer of 1965 we placed 14 nest boxes for goldeneyes on Fairy Island at Emma Lake, Saskatchewan. Seven of the boxes were installed on Lindner Point, an area of about 3 acres,



and the remaining seven boxes were located at 100-yard intervals along the north shore of the island. The boxes are made of 7 1/2 x 3/4-inch rough spruce boards and are 24 inches deep with inside dimensions of 6 x 7 1/2 inches. The bottom of the box is covered with 1/2-inch hardware cloth for drainage and each box is filled to a depth of about 3 inches with coarse wood shavings or moss and leaf litter. When the boxes were first installed, they were all of the side-entry type, with a hinged lid and an entrance hole 5 inches in diameter 3 1/2 inches below the top of the box. However, A. J. Erskine (personal communication) advised that Buffleheads readily accept open-topped, chimney-type boxes as well as side-entry boxes, and that goldeneyes would probably do the same, so in 1966 eight of the boxes were modified to the chimney-type by removing the hinged lid and covering the side-entry hole with plywood. This modification was made for several reasons: (1) none of the 1965 boxes were occupied in 1966 and it seemed advisable to provide more than one type of box, (2) most of the natural nest sites that have been found on the island are chimney-type holes in the tops of dead tree trunks, and (3) the chimney-type boxes, if suitable, are the easiest to build and maintain. Our subsequent observations have shown no significant difference in acceptance or nesting success between the two types of



box, and all of the boxes we have installed more recently have been the chimney type. The boxes are wired to the trunks of mature American White Birch, White Spruce or Balsam Poplar about 8 to 12 feet above the ground. Most of the boxes are located on an ice ridge along the shore of the island, within sight of water, but two boxes are in natural clearings in the interior of Lindner Point.

None of the boxes was occupied by goldeneyes in 1966 and 1967, but a brood of Saw-Whet Owls was reared in a side-entry box in a birch tree in 1967. In 1968 two broods of goldeneyes were hatched in chimney-type boxes and another brood of Saw-Whet Owls was found in the same box this species occupied in 1967. There are no records for 1969 or 1970.

Table 1 shows the use of nest boxes by goldeneyes at Emma Lake in 1971 and 1972. Ten of the boxes were checked on May 29 and all 14 were inspected on September 11, 1971. It is unlikely that all clutches were complete when the boxes were examined in May 29, so that the data for 1971 are not an accurate indication of clutch size. We can state,

TABLE 1.

Use of nest boxes by Common Goldeneyes at Emma Lake, Saskatchewan, in 1971 and 1972.

| Nest Box | 1971        |         | 1972        |         |
|----------|-------------|---------|-------------|---------|
|          | Clutch Size | Hatched | Clutch Size | Hatched |
| 1        | 6           | 6       | 17          | 0*      |
| 2        | 12          | 12      | 14          | 14      |
| 3        | 12          | 12      | 17          | 0*      |
| 4        | 13          | 0*      | 7           | 7       |
| 5        | 5           | 5       | 11          | 11      |
| 6        | 5           | 0       | 0           | —       |
| 7        | 16          | 0*      | 9           | 9       |
| 8        | 12          | 12      | 17          | 15      |
| 9        | 0           | —       | 15          | 15      |
| 10       | 17          | 0*      | 13          | 0*      |
| 11       | ?           | —       | 0           | —       |
| 12       | 8           | 8       | 6           | 0       |
| 13       | 12          | 0*      | 13          | 12      |
| 14       | ?           | —       | 13          | 0*      |

\*Dump Nest

however, that at least 11 of the 14 boxes were occupied and that there were five successful clutches, two apparently normal clutches that did not hatch, and four dump nests. A “dump nest” is one in which the rate of egg deposition is greater than one egg per day.<sup>5</sup> The following criteria have also been used: (1) clutches are abnormally large, (2) there is little or no natural down in the nest, (3) the eggs are left uncovered, and (4) the eggs are cold.<sup>4</sup> We did not inspect the nests in this study often enough to determine the rate of egg deposition, but our classification of a dump nest conforms generally to the other criteria.<sup>4</sup> When a goldeneye hen leaves the nest without being flushed, she covers the eggs with a loose blanket of down; if she is flushed during a nest box inspection, she does not have the time to cover the eggs, but the eggs are warm. The nests we have classified as dump nests contained abnormally large clutches, the eggs were cold and were not covered with down, and there was no instance of a hen’s being flushed. The dump nests that were found in 1971 were emptied and the eggs discarded after the laying period; we did not attempt to determine whether the eggs had been incubated or whether they were fertile.

The nest boxes were inspected more frequently in 1972. Each box was checked on May 25, 1972, and was visited at least once and usually three times during the period of egg laying. All clutches were apparently complete by June 2, 1972. As in 1971, obvious dump nests were emptied, but this did not result in subsequent occupancy of the box by a hen with a normal clutch. The boxes were inspected again on July 5, 1972, to determine nesting success. The results for 1972 are also shown in Table 1. Only two of the 14 boxes were unoccupied in 1972 and at least seven had successful clutches.

It was noted earlier that more than one hen will sometimes use the same nest. In 1972 the eggs in each nest were individually numbered with a felt pen and the length and maximum breadth of each egg was measured to the nearest millimeter. When there were apparent differences in colour or shape, as well as



size, among eggs in a nest, these characteristics were also noted. It was clear from such observations that more than one female contributed to clutches which were incubated, as well as to dump nests. For example, nest box No. 9 contained an unusually large clutch of 15 eggs (Table 1), including at least two eggs which were much smaller than the others. Two small eggs, presumably from the same female, were also found in a clutch of 17 eggs in nest box No. 8, and adjacent box. The entire clutch in nest box No. 9 hatched successfully and the two eggs which failed to hatch in nest box No. 8 were not the small eggs, but were of the same size and shape as the average for this clutch. These data will be analysed in more detail later and further observations will be made in subsequent years, but we can tentatively conclude from these and similar observations of other nests that one hen may incubate and hatch eggs of other females that are laid in her nest, and that the clutch of a single hen can only be determined from careful measurement and analysis of the size, colour and shape of all of the eggs in a nest.

In spite of the time lag between the first installation of nest boxes and their subsequent use by goldeneyes at Emma Lake, we have been sufficiently encouraged by their recent success to ex-

pand this study. In the summer of 1971 the number of nest boxes were increased to 33 and 19 more were added in the spring of 1972, so that there is now a total of 52 nest boxes at Emma Lake. In addition to contributing to the welfare of this interesting duck, we feel that studies such as this will answer some of the many questions that still exist about the ecology and behaviour of goldeneyes.

<sup>1</sup>Bannerman, D. A. 1958. The birds of the British Isles. Oliver and Boyd, Edinburgh and London. Vol. 7. 256 pp.

<sup>2</sup>Brewster, W. 1900. Notes on the breeding habits of the American Golden-eyed Duck or Whistler (*Clangula clangula americana*). Auk 17: 207-216.

<sup>3</sup>Grenquist, P. 1963. Hatching losses of Common Goldeneyes in the Finnish Archipelago. Proc. XIII Internat. Ornithol. Congr. 685-689.

<sup>4</sup>Leopold, F. 1951. A study of nesting Wood Ducks in Iowa. Condor, 53: 209-220.

<sup>5</sup>Morse, T. E., and H. M. Wight. 1969. Dump nesting and its effect on production of Wood Ducks. J. Wildl. Mgmt. 33: 284-293.

<sup>6</sup>Phillips, J. C. 1925. A natural history of the ducks. Houghton Mifflin Co., Cambridge. Vol. 3. 383 pp.

<sup>7</sup>Prince, H. H. 1968. Nest sites used by Wood Ducks and Common Goldeneyes in New Brunswick. J. Wildl. Mgmt. 32: 489-500.

<sup>8</sup>Titman, R. D., and J. K. Lowther. 1971. Parasitism of Mallard nests by Common Goldeneyes. Canad. Field. Nat. 85: 323-324.

<sup>9</sup>Witherby, H. F., F. C. R. Jourdain, F. Ticeburst, and B. W. Tucker. 1939. The handbook of British Birds. H. F. and G. Witherby Ltd., London. Vol. 3. 387 pp.



Courting Goldeneyes

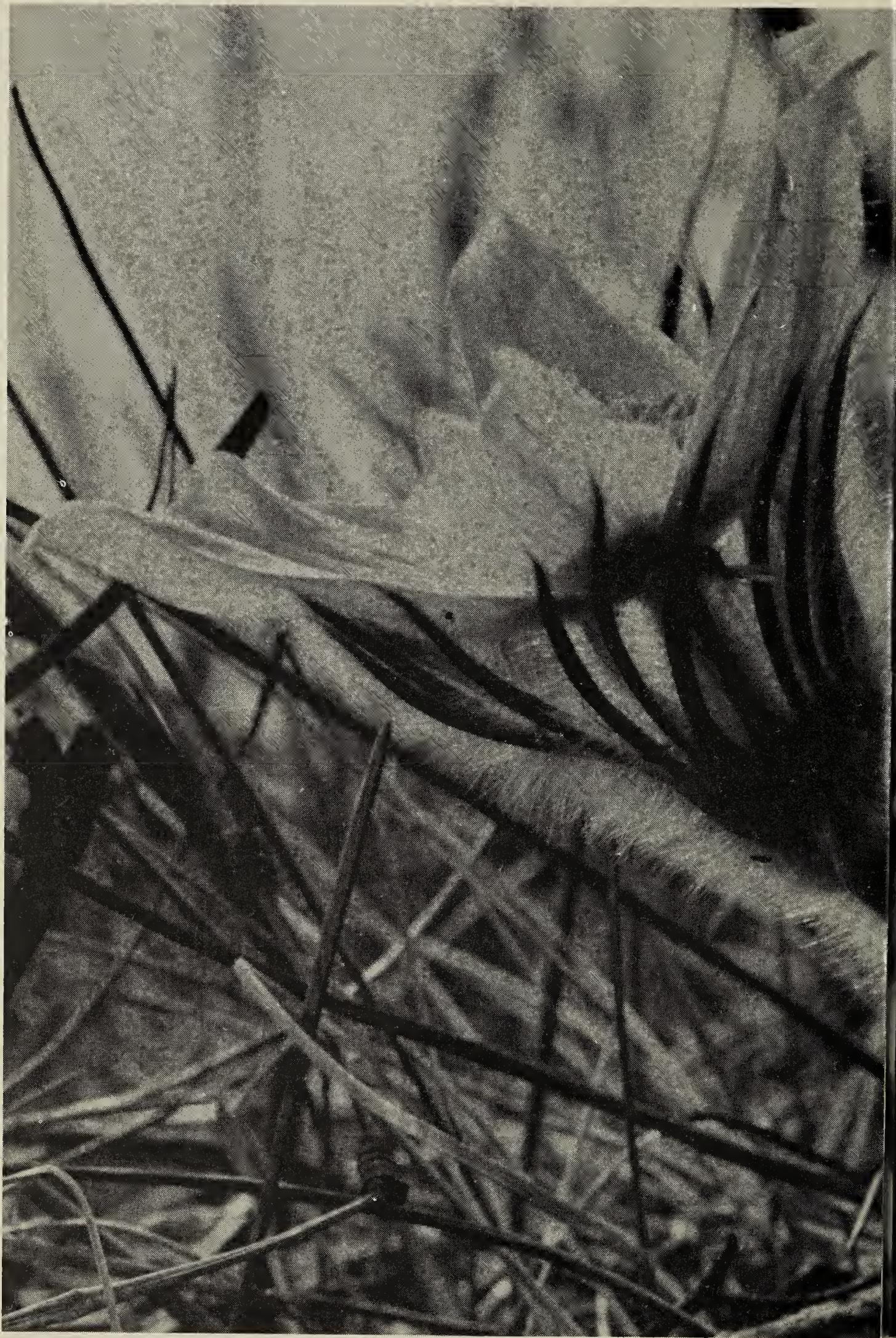
Fred Lahrman





Donald Keith





Suddeny

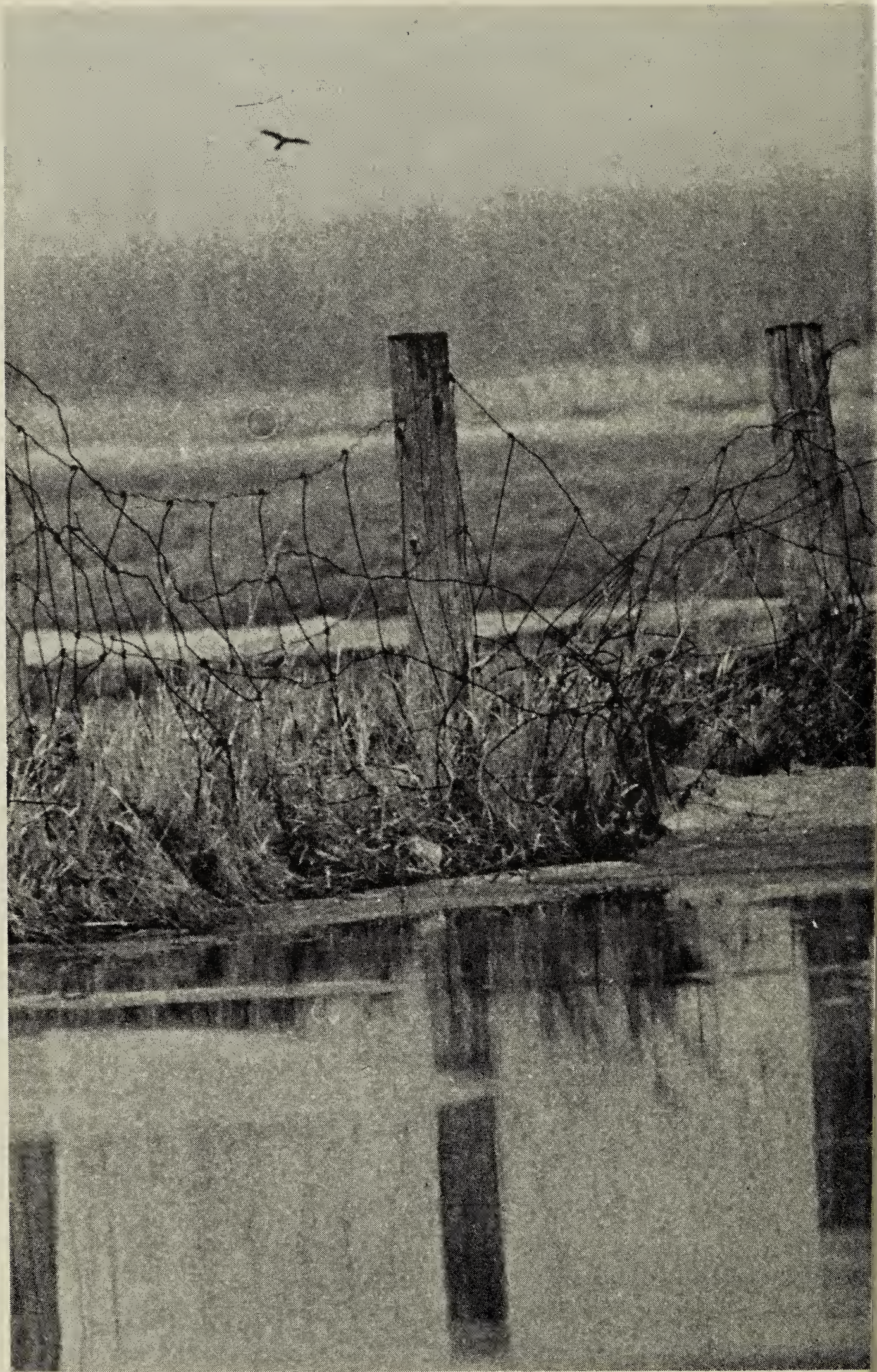




Spring!

Donald Keith





Donald K



# 1972 BEST YEAR YET FOR SASKATOON BLUEBIRD HOUSE TRAIL

BY DAVID V. HOUSTON\*

This, the Saskatoon Junior's part of the trail, has remained fairly steady at 410 birdhouses of which 216 are in our main study area. As will be seen in the table, we had 25 pairs of Mountain Bluebirds, up from 12 pairs last year: they seem to double in numbers each year. We had, unfortunately, 48 pairs of House Sparrows; they have also made a great jump lately, perhaps because they prefer older house; last year we had only 17 pairs. And, with the four species on the trail, we had attained a remarkable 98.7% occupancy rate for our houses.

Another 21 houses were added after nesting this fall to join up with Mr. Jake Kargut in Langham. This is only his second year and Mr. Kargut now has 200 birdhouses in use, extending as far as Borden. This year he had 45 pairs of Mountain Bluebirds, 101 pairs of Tree Swallows, 9 pairs of House Wrens, and 8 pairs of House Sparrows in his boxes.

| Year                      | 1969  | 1970  | 1971  | 1972   |
|---------------------------|-------|-------|-------|--------|
| Total houses              | 207   | (368) | (412) | (410)  |
| In study area             | (115) | 182   | 208   | 216    |
| Tree Swallows             | 128   | 130   | 172   | 161    |
| Mountain Bluebirds        | 3     | 8     | 12    | 25     |
| House Sparrows            | 11    | 11    | 17    | 48     |
| House Wrens               | 2     | 0     | 0     | 2      |
| Total occupied            | 134   | 145*  | 191** | 213*** |
| Intact, empty             | 11    | 15    | 12    | 2      |
| Damaged, empty            | 11    | 15    | 12    |        |
| Damaged empty             | 62    | 22    | 5     | 1      |
| Occupancy rate            | 65%   | 80%   | 91%   | 98.7%  |
| Tree Swallows banded      | 10    | 10    |       |        |
| Tree Swallows banded      | 193   | 324   | 662   | 664    |
| Mountain Bluebirds banded | 10    | 21    | 53    | 157    |

Note: Statistics are taken from the underlined numbers, not from the numbers in parentheses, since regular checks are now restricted to houses within 60 miles of Saskatoon.

\*By 149 pairs in 1970. In four cases, a house was used successively by two species: two had Tree Swallows and Mountain Bluebirds; 2 had Tree Swallows and House Sparrows.

\*\*By 201 pairs in 1971. Ten houses were used by two species: five had Tree Swallows and Mountain Bluebirds; five had Tree Swallows and House Sparrows.

\*\*\*By 234 pairs in 1972. Twenty-one houses were used by two species: 12 had Tree Swallows and House Sparrows; 7 had Tree Swallows and Mountain Bluebirds; 1 had Mountain Bluebirds and House Sparrows; and 1 had Mountain Bluebirds and House Wrens.

863 University Drive, Saskatoon.

## NEST RECORDS

Anyone wishing to participate in the Prairie Nest records scheme in 1973 may obtain information and cards from:

H. W. R. Copland,  
Manitoba Museum of Man and  
Nature,  
190 Rupert Ave.,  
Winnipeg Manitoba R3B 0N2.

Have a pen or pencil handy? Why not fill out the questionnaire at the front of this issue?

# BIRD WATCHING — Indoors

BY THELMA PEPPER\*

*Oh, every year hath its winter,  
And every year hath its rain —  
But a day is always coming  
When the birds go north again.*

*When the Birds Go North Again  
By Ella Higginson*

Ella Higginson undoubtedly spoke for the countless thousands of bird watchers who eagerly await the coming of spring and with it the inevitable migration to the north.

Nothing has brought so much joy to our family over the past 10 years as the excitement each spring of the first sighting of a Baltimore Oriole, a Gray-cheeked Thrush, a Harris' Sparrow or any of the other 73 species of birds that we have seen resting momentarily in our yard.

Looking back now, we can recall the spring of 1963 when a bird was but a bird. One day we mentioned to Dr. C. Stuart Houston that several "big black" birds had been in our yard. Characteristically, it wasn't long before Stuart had placed his bird cages there and encouraged us to catch the grackles so that he could band them. Nothing can stimulate one's interest more than seeing a live bird in the hand and it wasn't long before we, too, were converted and had entered into the wonderful world of bird watching. Since then it seems that nearly every day has brought a new and different experience.

What can match the fascination of seeing several hundred Bohemian Waxwings strip the berries from a large mountain-ash right before your eyes within a few minutes on a bitterly cold January day! Or those same waxwings in the early spring apparently in a drunken stupor after gorging themselves with over-ripe berries! Can you imagine seeing Common Grackles soaking hard crusts in a birdbath to soften them before eating, or Cedar Waxwings

stealing the lining from a Robin's nest to use in their own? It is exciting to see grosbeaks, waxwings and sparrows suddenly scatter at the appearance of a Loggerhead Shrike. And one day in May we were thrilled by a pair of Baltimore Orioles that returned every 10 minutes to get stuffing from an old mattress for a nest they were building three blocks away. These are some of the many exciting activities that occur in the vicinity of our backyard.

We are fortunate to live in one of the older, treed districts of Saskatoon where the boulevards are lined with elms. In our front yard there are two large mountain-ash trees. Manitoba Maple, Black and White Spruce are growing along the east side of the yard while White Birch and a large White Spruce occupy the west side. Most of our bird watching is done from our large picture window in the kitchen through which we can view the entire back yard, unknown to the birds. Beginning on the left, the part of our lot has Choke Cherry, Apple and Pear trees, French Lilac, Highbush Cranberry, sunflowers, a Green Ash, two large willows and an elm tree; the end of our lot is completely enclosed by trees. Then to the right, there are Black Spruce, cotoneasters, an ornamental crab and another mountain-ash. To complete the picture, directly below our window is a triangular flower bed, with a running-water birdbath in the centre.

Attracting birds by planting appropriate trees, flowers and shrubs has been a special interest of ours. It was in October, 1963, that the sunflowers brought the first Red Crossbills. Since then both Red and White-winged Crossbills have been fairly common visitors. The fruit of the Choke Cherries, which brings a profusion of birds in late August, disappears all too quickly. The Green Ash seems to have special attraction for grosbeaks and Purple Finches and the lilies always bring a Ruby-throated Hummingbird.

\*1015 Temperance St., Saskatoon, Sask.



In addition to natural food, large cones stuffed with chickadee pudding hang from the willow and spruce. Woodpeckers, nuthatches, juncos, chickadees and redpolls are commonly seen stabbing at the swinging food or clinging to the cone while they sample the delicacy inside. The chickadee pudding recipe came from Nova Scotia and for those who might like to try it, it is made of ground suet, flour, sugar, corn meal, old cake, bread and doughnuts, millet seed, peanut butter, ground apples, kitchen seeds (apple, squash, pumpkin, etc.) nuts and raisins. This is all mixed well with bacon fat. Food in a hanging cone has the big advantage of always being available to the birds in the winter, even if heavy snows blanket the ground and feeding trays.

It's October again and we know that some morning soon we'll look out our kitchen window and see a small brown bird creeping up the willow trunk. When it reaches the top it will fly to the bottom of the next willow. No binoculars are needed to identify this visitor, for surely it is a Brown Creeper, which never fails to visit our yard in the fall. This ability to identify a bird through an intriguing habit has added greatly to our bird watching pleasure. It's the trunks of these same willows that Black-and-White Warblers creep along. Again in the early fall when we see a bird literally *walking* beside our back fence, identification is assured. It is the Ovenbird. The Yellow-shafted Flicker rarely visits our yard until September, but then he's there almost every day all day long digging for ants. The steady dropping of cones from the Black Spruce is a sure sign that we can find crossbills high up in the branches.

As our awareness of the many species increased, we began to appreciate their songs and through them a whole new world opened to us. An unfamiliar melody is enough to get one up at break of day, as the song of a Fox Sparrow did at 6 o'clock one morning early in May. At that hour the richness of their song is particularly noticeable and one is tempted to believe that this pre-breakfast recital is a reward reserved for those willing to get up and listen at that hour.

Each year continues to bring some new species into the yard. Memorable were the days when we recorded a Golden-crowned Kinglet, a Canada Warbler and such unexpected guests as Wilson's Snipe and Ring-necked Pheasant. The stony stare of a Great-Horned Owl greeted us one Sunday morning and nearly kept us home from church. Brown Thrasher, Rufous-sided Towhee and Rose-breasted Grosbeak have become favourites with the children and always bring excited cries of "Come and see!"

Our daily family life has been enriched abundantly during the past decade, not so much, perhaps, by the knowledge that has been gained but even more by the experiences involved in gaining it. We are inclined to believe as Walt Whitman, "You must not know too much, or be too precise or scientific about birds . . . ; a certain free margin, and even vagueness — perhaps ignorance, credulity — helps your enjoyment of these things."

#### CHECK-LIST OF BIRDS AT 1015 TEMPERANCE ST., SASKATOON

Marsh Hawk, Pigeon Hawk, Ring-necked Pheasant, Wilson's Snipe, Rock Dove, Mourning Dove, Great Horned Owl, Common Nighthawk, Ruby-throated Hummingbird, Yellow-shafted Flicker, Yellow-bellied Sapsucker, Hairy Woodpecker, Downy Woodpecker, Eastern Kingbird, Least Flycatcher, Black-billed Magpie, Common Raven, Common Crow, Black-capped Chickadee, Boreal Chickadee, Red-breasted Nuthatch, Brown Creeper, House Wren, Catbird, Brown Thrasher, Robin, Hermit Thrush, Swainson's Thrush, Gray-cheeked Thrush, Golden-crowned Kinglet, Ruby-crowned Kinglet, Bohemian Waxwing, Cedar Waxwing, Northern Shrike, Red-eyed Vireo, Warbling Vireo, Black-and-White Warbler, Tennessee Warbler, Orange-crowned Warbler, Yellow Warbler, Magnolia Warbler, Myrtle Warbler, Black-throated Green Warbler, Blackpoll Warbler, Palm Warbler, Ovenbird, Northern Waterthrush, Mourning Warbler, Wilson's Warbler, Canada Warbler, American Redstart, House Sparrow, Baltimore Oriole, Common Grackle, Brown-headed Cowbird, Rose-breasted Grosbeak, Evening Grosbeak, Purple Finch, Pine Grosbeak, Common Red-

poll, Pine Siskin, American Goldfinch, Red Crossbill, White-winged Crossbill, Rufous-sided Towhee, Baird's Sparrow, Slate-colored Junco, Tree Sparrow, Chipping

Sparrow, Clay-colored Sparrow, Harris Sparrow, White-crowned Sparrow, White-throated Sparrow, Fox Sparrow, Lincoln Sparrow, Song Sparrow.

## FEEDING The Hungry

BY LAURA HOYTE\*

I have always been interested in birds. Sometimes I used to throw out a few crumbs for them on a cold day, feeling that a full stomach would keep them warm the following night. I never ceased to marvel that a bird as small as a chickadee could survive 40-below weather, yet its cheerful song and acrobatic antics would make me think he was enjoying it.

In 1964, after we moved into a cottage on the edge of Pike Lake, I had more time to notice how many different types of birds there were around. Of course, the friendly little chickadees were present in numbers. I began feeding them, at first by hanging pieces of suet on branches of trees just outside the kitchen window, and putting little bits of bread or left-over pie, tarts, etc, in the crotch of a maple. (It wasn't a very good place, as the food kept falling in the snow.)

I especially remember having a piece of peach pie, along with a butter tart, completely consumed by one Robin. Being first up on the morning of January 2, I went to the window to see how many of our feathered friends were having breakfast. Just below the window on the walk was a robin which seemed to drag one wing a little. It looked so miserable I was sure it was hungry. Sure that it would never find the pie in the

tree, I tried to decide, while putting the kettle on for coffee, how I could get some food out to it without frightening it away. But by the time I was free to look again, I was surprised to see it in the tree eating the pie.

That day began sunny but cold. All day long the Robin ate, then flew to sit in the sunny doorway of the unoccupied doghouse which faced the south and was protected from the wind by a chokecherry bush. It was still eating there in the evening when it was almost too dark for me to see. It was there again the next morning. How early it had started, I didn't know but it seemed unable to stop eating. The weather turned bad later in the day and a blizzard was forecast. Janice, our daughter, home for holidays, and I began to worry. Where could the Robin sleep out of the storm? We made a makeshift house out of an orange box and filled it with straw. Putting on our warm coats, we went out in the storm and fastened it to the chokecherry bush just above the doghouse where the Robin had perched when he wasn't eating or sitting in the doghouse. From what I know now, I am sure it was a waste of time. I don't think a Robin would ever go into a place like that. We even checked later with a flashlight, but we did not see the bird. The next morning it was not at the food tray, nor did it show up during the day. We did not see it again, and I always felt that it had eaten itself to death, although it could, of course, have perished in the storm. Since that time we have had as many as four Robins at our feed tray in January.

I had to find something better to hold the food. When we emptied the Christmas box of oranges, I took half the boards off one side, and nailed the other side to the trunk of the tree about 4 feet from the ground and just 6 feet from the kitchen window. From there I could

\*Mrs. Laura Hoyte lives at Pike Lake, a small resort community 18 miles south-west of Saskatoon. Now a Provincial Park, Pike Lake is an oxbow, part of the ancient bed of the South Saskatchewan River. Set in sandy country, the lake is heavily treed on the north and west sides. Rich in bird life, it is probably the best single birding area adjacent to the city.



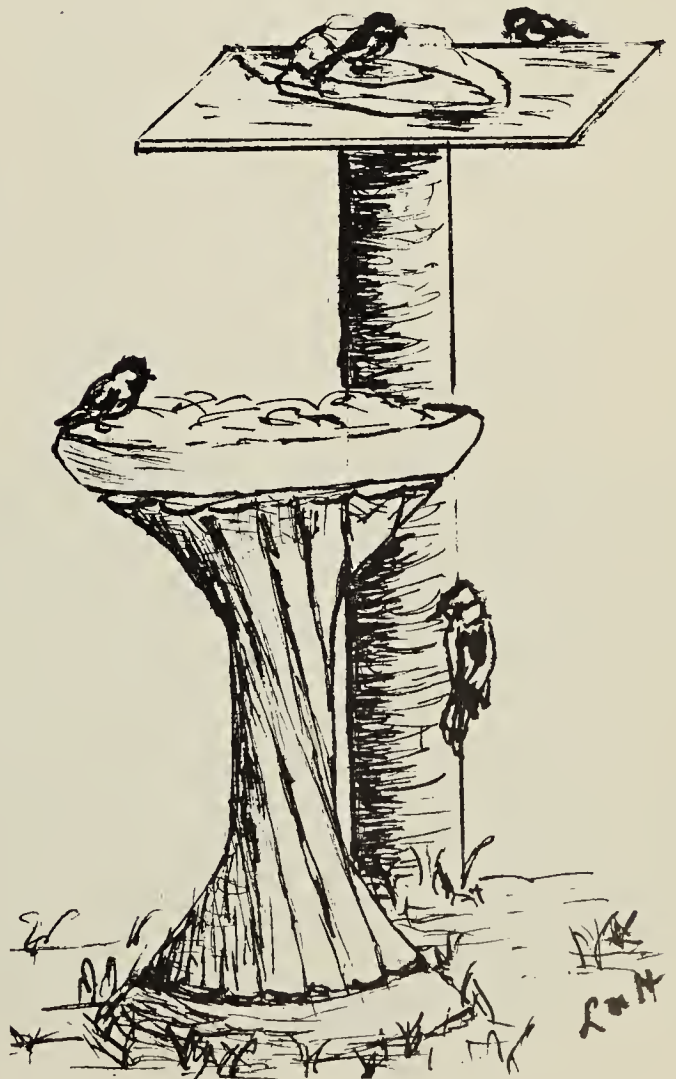
each new bird that came to the yard. To my surprise I learned that nearly 20 species of sparrows occur at one season or another at Pike Lake!

As more and more birds noticed the food and came to eat, my interest grew. The space provided soon became too small and we had to find other places to put food. Hairy and Downy Woodpeckers were now daily visitors to the suet, as many as six feeding at once. Grosbeaks and waxwings came but would not eat from the feeder; they ate the seeds of the Manitoba maple, chokecherries and other berries that stayed on the trees. In March and again in October up to 20 juncos fed regularly at our tray. In the winter Starlings occasionally dropped by. Chickadees were abundant. I actually counted 15 on one occasion, and I knew there were more in the nearby woods. We had a cement birdbath in the yard, which I filled with crumbs, different kinds of grain and suet. The Blue Jays had now joined the numbers of visitors and they and the



watch the goings and comings while I prepared meals and washed dishes.

Mr. Frank Roy, who teaches students at City Park Collegiate (which our two daughters attended), often stops by on bird expeditions to say hello as he, too, is interested in the birds that collect at the feeder. When he first came, I knew only the familiar birds and often asked him about different species I had seen. Knowing my interest, he and Dr. Bernie Gollop from the Canadian Wildlife Service send me cards to fill out each month for their records. I became more interested after I got books to identify





magpies carried away the bigger pieces of suet. It's quite a sight to see eight Blue Jays and eight magpies crowded around the feeders at one time.

At this point I must introduce our Samoyed dog, Nickie, since he plays a part in our story. He had figured out that I chased the magpies away but not the other birds and on days that he felt energetic he decided to chase them too. As he jumped and barked at them, one would lead him away while the others took the bread and suet from the feeder. Both Nickie and the magpies claim the uncleared wooded lot belonging to the Church across the road. While he is over there exploring, the magpies follow above from tree to tree, scolding all the while. One day a magpie flew off with a large piece of suet, almost too big to carry, so Nickie took off too. When the magpie dropped the suet half way across the church yard, Nickie retrieved it and started home. He always brings anything he finds to me in exchange for something tasty from the fridge. The magpie followed closely, as it wasn't

about to give up if there was a chance of retrieving its suet. Needless to say Nickie got his tasty exchange. There were days when Nickie gave up completely and lay at the end of the driveway, but the magpies proceeded to see how far they could go with him. They would pretend to find a good supply of food no less than 1-1/2 feet from his front feet or 2 inches from his tail but when he persistently looked off at the distance as if he didn't even know they were there, they finally gave up and went about their business.

I soon realized that I had to find a better way to secure the suet since too much of it was going to waste. Charles Kelman, of the Saskatoon Quick Freezer, gave us all the suet we could use, most of it in large pieces. Joe, my husband, cut a big piece of plywood, 20" by 20", and we nailed it on a post beside the bird bath, securing the chunks of suet and fat with large nails.

In 1969 we had a lot of snow — one of those years when you never see a rabbit track anywhere and food was scarce





for the large birds of prey. The board with the suet would be quite visible to a hungry bird flying overhead. January 20 was a bright clear day. Just after lunch I went to let Nickie out and he began barking and looking at the suet board. I looked up and saw a large, dark bird with his back to me. Closing the door, I hurried to the window, calling Joe. The bird must have been very hungry because he stayed for several more bites even after the door was closed and the dog had barked. I wish I had glanced out the window before letting Nickie out, for we might have been able to watch it without disturbing it. Just as Joe got to the window, it flew up. The wing span appeared to be about 7 feet. We were not sure at this point what kind of a bird it was, and since it was flying away from us there was a good chance that we would never know. Then it turned, came back toward the house, and flew over the window from which we watched. Our hungry visitor was a Golden Eagle! Not likely in our lifetime will Joe and I ever again welcome such a rare bird to the feeding station.

Ruffed Grouse are permanent residents here; two to four stay the year round, and each summer they pass through the yard with their families. We have taught Nickie that they belong just as he does, so he simply lies and watches them. Mallard ducks come back each year too. We watch them swimming back and forth with their babies. I often see them on the grass at the edge of the lake, pruning themselves and basking in the sun. This fall Joe built a retaining wall

along the bank, leaving a space at each end with a gradual slope into the water so that the ducks can get onto the lawn to do their sunbathing. Last spring a pair roamed around the yard for a couple of days looking for a nesting place. They spent so much time in my flower bed I thought they had chosen it, but they moved on — leaving me to guess where they had built their nest.

Now each fall, in order to satisfy the crowd, we store up boxes of crumbs from the slicing machine at McGavin's Bakery. During the winter we serve up 9 cubic feet of bread crumbs. For the seedeaters we generally buy a bag of screening from Early Feed and Seed in Saskatoon. We were lucky enough 2 years ago to have a bushel bag of bird seed given to us by Jack McFaul of Saskatoon, who had grown it on his farm near Zealandia. We beg all the suet we can and cover the suet platform with fine chicken wire so that none goes to waste. We use about 20 pounds each winter. In addition, we use about 10 pounds of wheat, which appeals particularly to the Blue Jays. This is the first summer we have kept food out all the time and four Rufous-sided Towhees thought it such fun they remained all summer.

If you want to join in the fun, throw out a few crumbs, then hang up a few pieces of suet, and the first thing you know you will be caught up in the most interesting pastime you can imagine. You'll never know what you have been missing until you try it.



Red Fox Pups, Indian Head

Fred Lahrman



# COUGAR KITTENS

## Reported Near Antler, Saskatchewan

BY TOM WHITE\*

Reports of Cougars have continued to come in from various parts of the province at different times of year. Sight reports, specimens obtained in 1939 and 1948, and plaster casts of tracks make it clear that the Cougar is a rare inhabitant of this region.<sup>1</sup> It is still unknown how many Cougars occur here or how far individuals range, but systematic collection of data is making the situation more clear. Detailed sightings make it possible to judge the reliability of reports. Certain actions are typical of Cougars and in many cases even untrained observers describe characteristics of gait, appearance or feeding habits that almost certainly identify this interesting animal.

Sightings made in 1970 and 1972 southeast of Moose Mountain, Saskatchewan, near the town of Antler are particularly interesting because they indicate that Cougars have bred in this area. Antler lies close to the Saskatchewan-Manitoba border approximately 40 miles north of North Dakota.

Mrs. Harris of Antler was brought up in Nova Scotia. Her only previous contact with a Cougar was one she photographed in a Nova Scotia museum. However, one morning when returning with a basket of eggs from their barn on the outskirts of Antler she found a Cougar crouched at the side of the barn about 10 feet away. Her dogs got very excited and rushed at the Cougar which "ran like the devil" with the zigzag gait of a cat. She described it as being 6 feet long from its nose to the end of its long tail, with a yellowish-tan, loose looking skin. Mrs. Harris reports that she nearly broke the eggs in her basket in her excitement, and later her report of the encounter was generally ridiculed by her

neighbors and relatives. Nevertheless she wrote down the date of her experience in her record book—March 28, 1970.

Mr. and Mrs. Harris say that other people have since seen the Cougar and have heard its voice occasionally. It sounds like a child crying hard or like a woman screaming, all unpleasant blood-curdling sounds. The cries go on for 5 minutes and then occasionally afterwards.

Mr. Harris encountered a Cougar at 10:00 a.m. on June 13, 1972. He had been out after cattle and saw it 300 yards away walking along the edge of a slough. It was close to 8 feet from nose to tail and sandy coloured. Mr. Harris believes that Cougars will not cross summer fallow. He noticed at this time that a deer had a day old fawn in the centre of a slough which was surrounded by new summer fallow. This is unusual, a doe normally keeping its fawn in bushes. Also, some herds of cows were lying in a circle facing out with their calves in the centre. Usually the calves run free with an old cow and the other cows are independent. (This situation was also seen later in one herd when I was touring the area.) There were also local reports of cattle stampeding through wire fences and horses behaving wildly. (Cows forming a circle with calves in the centre while a Cougar stalked nearby was noted also at Rocanville and Wood Mountain. Stampeding of horses and cattle through wire fences has also been reported in connection with other Cougar sightings.)

A neighbour of the Harris's, George McLean, reported the following. He was summer fallowing at 9:00 a.m. four miles southeast of Antler on June 19, 1972. He observed an animal loping through long grass with only its back showing. It did not appear to be a deer.

\*2580 Retallack St., Regina, Sask.



or Coyote, and had an unusual gait. When it came to the edge of the summer fallow 150 yards away it stopped and looked back, showing a big, round, fat face. It then leaped about 20 feet over the summer fallow into the weeds and hopped off into the brush. It was yellow-tan in colour, longer and slinkier than a deer and when it leaped its long tail could be seen. It was about 6 feet or more long, 200-250 pounds in weight and 2 feet high to its shoulder.

The next morning, Mr. McLean was cultivating the summer fallow when he again clearly observed a Cougar. This one was shorter and chunkier than the other, had a lower belly and was about 4 feet, 6 inches long, including its long tail. It kept circling through some tall grass and on one occasion stood on a knoll and appeared to be watching something. In the afternoon at the same place Mr. McLean saw first one Cougar kitten and then a second about a 100 yards away. He drove his discer at them several times trying to kill them. He got very close but was afraid to get off the tractor because he didn't know what the female Cougar would do. He was within a few yards of the kittens on several occasions and had an uninterrupted view of them. The kittens were larger than a house cat, had long tails and seemed greyish in colour. They went into a slough and then into the bush. In

the field there was an unused Badger hole in the entrance of which were found bones and feathers. The hole appeared to have been enlarged and grass had grown into the entrance forming a bed 4 or 5 feet long. Mr. McLean stated that this area normally has a high density of deer but that recently they had largely deserted the place.

Nearby, on the George Godomier farm, a cow died of natural causes and was left on the side of a field. When it was examined later, it was found to have had the hide peeled off and the entire meat had been eaten in much shorter time than is usually the case. (This is typical Cougar family feeding sign.) Mrs. Godomier said that in 1971 she was awakened one night by blood-curdling screams and thought her dog had been killed. George Godomier recalled than an old trapper who lived all his life in this area and who died some 15 years ago, had said that there were Cougars living in the area.

The above reports, which in my opinion are reliable, provide additional evidence of the existence of this rare animal in the province. Others who may be so fortunate as to sight this species are urged to record and report their observations in detail.

<sup>1</sup>White, Thomas. 1967, History of the Cougars in Saskatchewan. *Blue Jay* 25:84-89.

## RED FOXES

### Make a Comeback in Central Alberta After 30 Years

BY DICK DEKKER\*

J. Dewey Soper gives the distribution of the Red Fox as covering all of Alberta except the south-central and southeastern region, which was formerly the habitat of the Kit Fox.<sup>2</sup> Since 1959 I have made enquiries about the local occurrence of Red Foxes in the southern half of the province from numerous naturalists, park wardens, forest

rangers, farmers, ranchers, trappers and outfitters. It appears that during the past 40 years some significant changes have taken place. From the thirties to the late sixties, foxes were virtually absent from all of central Alberta. Recently, they are staging a comeback.

The following are my conclusions about the regional status of the Red Fox during the previous decade. It was:

1. Scarce in Jasper and Banff National Parks. (Soper reported it scarce in the mountains.)

\*3819 - 112A Street



2. Absent in the foothills west of Calgary, where it was common 30 years earlier.

3. Absent or scarce in the Edson and Whitecourt Forests, where trappers reported it numerous 30 years earlier. (A few reports persisted from the Swan Hills.)

4. Absent or scarce in the parkland and agricultural areas west and north of Edmonton.

5. Absent or scarce from Edmonton east to Saskatchewan and south to the International Boundary, with the exception of the Milk River area.

While cyclic fluctuation is a characteristic of some North American fox populations, their absence for three or four decades in some areas of former abundance in Alberta is a mystery. The rabies scare and the saturation poison campaigns of the early fifties may have been a decisive factor locally. Also, competition from Coyotes, which were common in central and southern Alberta during the past 40 years, may have played a role. Equally puzzling is the rather sudden re-appearance of Red Foxes in some of their former range and the expansion into new territory, a phenomenon of the past 5 years.

Red Foxes made their first gains in the extreme south of the province. From the Milk River Valley they extended their range northward into the irrigated farm lands around Lethbridge and Taber. In 1968 a pair was reported denning near Balzac, just north of Calgary. At least one animal was shot the following winter by someone on a snowmobile. In 1969 and 1970 several foxes fell victim to snowmobilers in the Camrose area, and one was gunned down just 10 miles south of Edmonton, where another fox became a traffic fatality. The previous summer a fox had been seen crossing a field on the southern edge of the city. In the next 2 years no further reports from that locality came to my attention.

During the same period, foxes were establishing themselves in the eastern parts of Alberta. There were reports from Cold Lake, Bonneyville, Provost and Cypress Hills. Several were poisoned near Acadia Valley. In August

of 1972 I was guided to four fox dens which had been used recently. One had been dug into a haystack on the edge of a farm yard, another in a ditch along a country road, while two others were situated in fields well away from cover and within 100 yards of well-used roads. In that area, 50 miles east of Edmonton, lifetime residents were seeing their first foxes.

By 1972 foxes had spread westward. They were seen near Elk Point, Warwick, Provost, Lavoy, Mannville and Tofield. North and west of Edmonton foxes were recorded from Swan Hills, Winnegami, Long Lake and Seibert Lake.

It appears that the new breed of fox is more adaptable than its predecessor. It seems quite able to cope with human domination of the land. In recent times foxes have also expanded their range in southern Saskatchewan and in the northwestern United States.<sup>1</sup>

In Alberta, one can speculate that the recent population expansion of the Red Fox is directly related to the emergence of over-snow vehicles and their adverse impact on Coyotes. With a lessening of competition from the latter, which were hunted down mercilessly by snowmobile operators, the fox found a place to live. The mis-use of snowmobiles may have had a beneficial side effect for me, personally, for on November 18, 1972, one of my fondest wildlife dreams was realized when I observed a Red Fox for the first time here in central Alberta.

### Acknowledgements

The following persons provided recent Alberta Red Fox records: Bill Bilyk, Ludo Bogaert, Ludwig Carbyn, Peter DeMulder, E. Good, Loran Goulden, Michael Hampson, Mark Hoffman, Dr. Otto Höhn, Edgar Jones, Jasper Keizer, Bill MacKay, Chuck Scott, Philip Taylor, Jo Wideman, Wayne Vogtlin and others.

<sup>1</sup>Rue, L. 1969. The world of the Red Fox. Lippincott.

<sup>2</sup>Soper, J. D. 1964. Mammals of Alberta. Queen's Printer, Edmonton, Alberta.



# Scientists Deter COYOTES With Toad-Tasting Sheep

From *Conservation News*, Nov. 15, 1972.

There is a researcher at the University of Wisconsin who wants to make a leg of lamb taste like a toad.

This same project has researchers elsewhere doing equally strange things, including spraying lambs with cinnamon oil and skunk odor, cougar urine and Tabasco sauce.

These seemingly-odd though related experiments were recently given top priority in several western states when President Nixon signed a 1972 Executive Order banning the use of predator poisons on public lands. Environmentalists had increasingly argued that the poisons were non-selective and were destroying increasingly-rare and innocent animals. Livestock men, however, have long complained that without the poisons, sheep and cattle losses to predatory coyotes would be disastrous to the industry.

So researchers are now committed to a scientific research for other ways to discourage coyotes from seeking an easy meal of lamb chops. Apparently, common control devices used on other predators, such as bobcats, don't work as well on the coyote. The crafty animal is well-known for his intelligence and adaptability. "If you put a coyote on a tennis court with nothing else in there," said one veteran trapper "he could hide behind the ball."

Scientists are first trying to determine exactly how many sheep are actually killed by coyotes and the circumstances involved. Although newborn lambs are the most susceptible to predator attack, no one really knows just how many sheep are annually killed by coyotes. At a wildlife research center in Denver, researchers are conducting tests with tiny wax-encased electronic sensors on sheep collars and temperature sensitive devices under sheep skins to determine when a sheep is dead. Supposedly, one will be able to tell whether

a coyote killed the sheep or whether the sheep dies of other causes and the coyote merely ate it as carrion.

Other tests are specifically focused on dissuading a coyote from attacking sheep. The toad-tasting experiment is a result of the fact that almost nothing eats toads, particularly coyotes. A certain chemical in the amphibian's skin reportedly produces a disgusting taste. Biochemist Robert McColloch and other University of Wyoming researchers are trying to extract this and similar aversive agents, including the previously-mentioned exotic mixtures, and attach them in capsule form to sheeps' wool. According to Wall Street Journal report of the test: "When bitten by a coyote attacking the sheep, the capsules are supposed to burst, releasing the chemical and giving the coyote a repulsive, sickening taste in his mouth. After that, scientists theorize, the keen-witted coyote will quickly decide to avoid all sheep and teach its young to do the same. Ideally, the scientists hope to create a new generation of coyotes that would shudder at the sight of sheep, which is far from the situation now."

Similar research includes a search by a Colorado State University team for a foul-smelling coyote repellent. Skunk odor or some other revolting smell will be wafted toward coyotes from areas where sheep are. Two South Dakota State University scientists are trying to discourage predators with ultrasonic transmitters implanted in the lead sheep of a flock. These "bleepwhethers" emit a high-pitched sound that, it's hoped, will prove too painful for sensitive coyote ears. However, the pain should prove to be a bit of a problem for the sheep. "We can't drive the sheep herder, dogs, and horses nuts, too," one scientist worried. Other techniques being considered range from mass fencing of rugged sheep ranges to trying to aggressively change the timid, docile nature of sheep.



Though sheep raisers generally feel that the tests are absolutely necessary, many are suspicious. William Simms, president of the Texas Sheep and Goat Raisers group recently asked: "Who is going to be out there to put this repellent on the lamb when it is born? The mother?"

But the Interior Department strongly defends predation-control research as "desperately needed." Jack Berryman, director of Interior's Wildlife Service Division said that "We can have coyotes in abundance and we can protect the sheep industry. We don't have to make that choice."



Are you willing to spend an 8-cent stamp for conservation? If so, complete and mail the questionnaire in this issue.

## Additional Records of the *BULL SNAKE from Alberta*

BY GEORGE B. PENDELBURY\*

It is generally well known that the range of the Bull Snake extends into Alberta.<sup>1 2 3 4 6</sup> In spite of this, very few specific locations have been recorded in the literature and the distribution of this snake in the province is yet to be well defined.

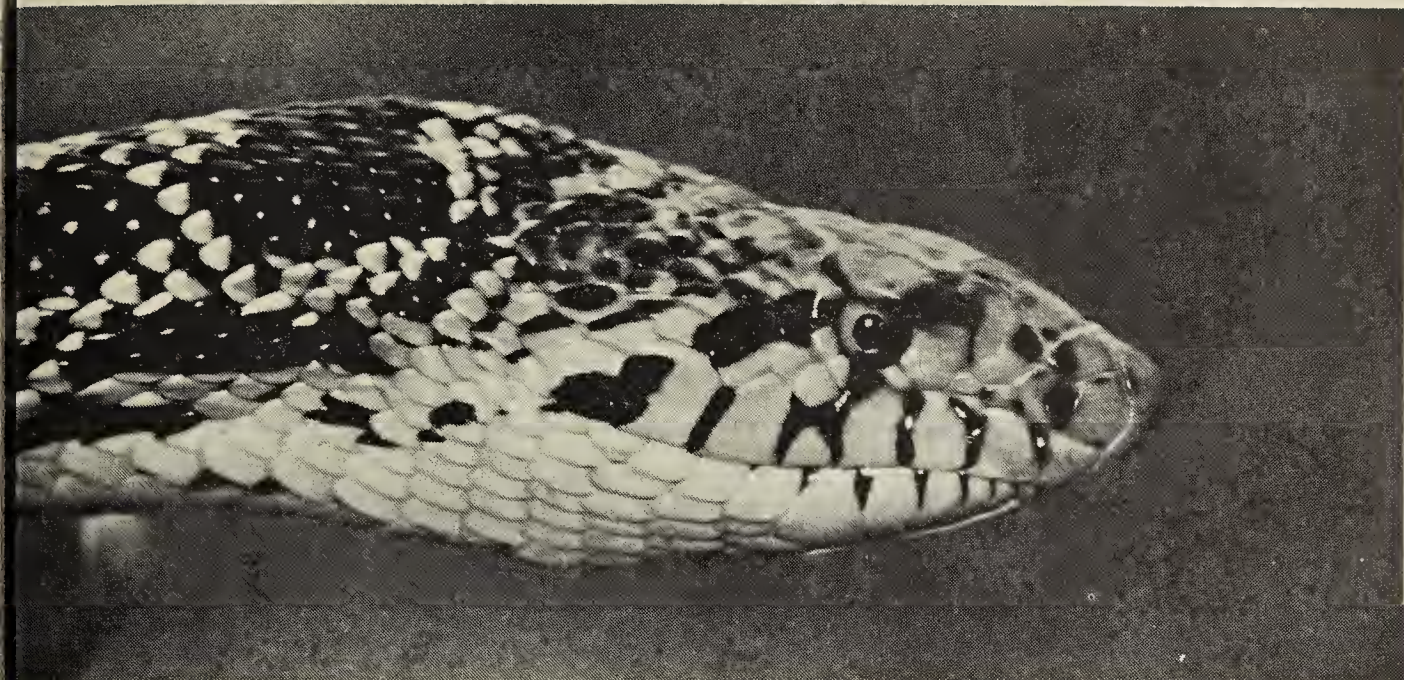
The occurrences plotted in Figure 1 are based on several sources of information including (1) published records,

(2) specimens in various museums, (3) specimens captured by the writer and (4) specimens captured by others and brought to the attention of the writer.

While Bull Snakes are most common in the southeastern corner of the province, they are not restricted to this region. The species occurs as far west as Lethbridge and as far north as Hanna. The majority of records, however, fall within the range outlined for the species by Stebbins.<sup>5</sup>

\*No. 203, 820-5th Ave. S.W. Calgary, Alberta.





Bullsnake at Mankota, Sask.

Fred Lahrman

Previously unpublished locality records from within this area include: Comrey, Dinosaur Provincial Park, Lost River Valley northwest of Deneau, Writing-on-Stone Provincial Park (personal communication: F. R. Cook, December 12, 1972); Manyberries, Pinhorn Grazing Reserve (personal communication: M. J. Hampson, July 12, 1972); Schuler (oral communication: R. Vervloet); and specimens seen by the writer 16 km (10 mi) east of Tilley on the Trans-Canada Highway, 13 km (8 mi) north of Medicine Hat, 19 km (11.8 mi) north-

northeast of Medicine Hat and 5 km (3 mi) west-southwest of Redcliff. In addition, Bull Snakes are not uncommon in parts of the Cypress Hills (oral communication: local resident).

The writer has recently learned of other localities where Bull Snakes have been found in Alberta. Some of these are worthy of note, particularly as they extend the range of the species a considerable distance to the northwest.

Live specimens have been seen on the banks of Nose Creek, 2 km (1.2 mi) west of the Calgary International Airport, during the summer of 1969, on the banks of Sheep River near Okotoks in September, 1971, and in Waterton Lakes National Park on July 20, 1972 (oral communication: A. Vervloet). Road kills have been found and identified 16 km (10 mi) west of Beiseker in the fall of 1970, and on the Trans-Canada Highway 10 km (6 mi) west of Strathmore on May 20, 1972 (oral communication: R. Vervloet). Reports indicate that Bull Snakes are also common in the Trochu Area, 105 km (65 mi) northeast of Calgary (personal communication: M. J. Hampson, June 13, 1972).

The writer is grateful to Mr. F. R. Cook, Curator of Herpetology at the National Museum of Natural Sciences in Ottawa, and Mr. M. J. Hampson, Zoological Preparator at the Provincial Museum and Archives of Alberta, for providing some of the previously un-

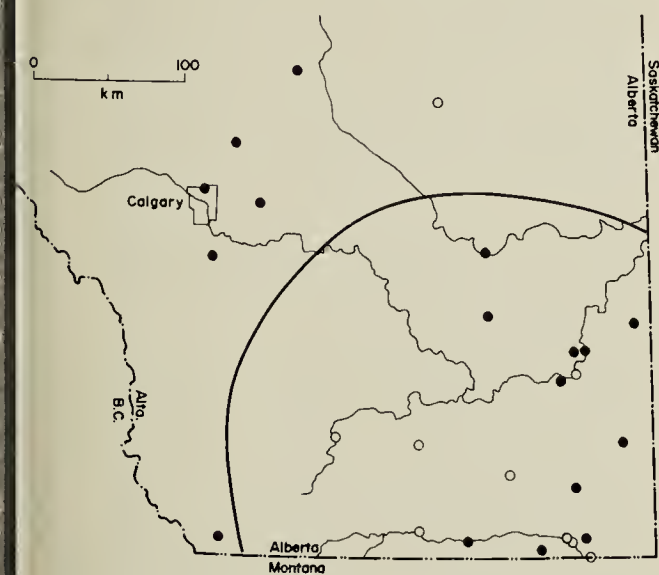


Figure 1. Occurrences of the Bull Snake *Pituophis melanoleucus sayi* in Alberta. The open circles are previous reports, solid circles are unpublished records included in this paper. The solid line represents the range limit of the species according to Stebbins.<sup>5</sup>



published distribution data included on the map. The manuscript was critically read by F. R. Cook who offered suggestions for its improvement.

<sup>1</sup>Conant, R. 1958. A field guide to reptiles and amphibians of the United States and Canada east of the 100th meridian. Houghton Mifflin Co., Boston.

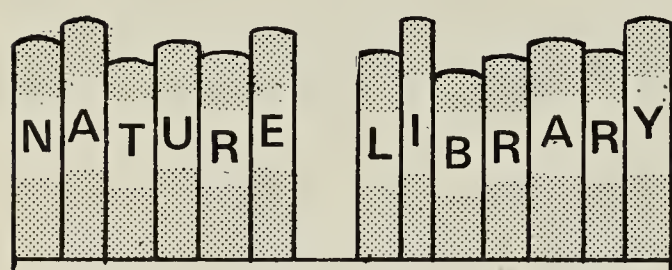
<sup>2</sup>Ditmars, R. L. 1936. The reptiles of North America. Doubleday and Company, Inc., New York.

<sup>3</sup>Logier, E. B. S., and G. C. Toner. 1961. Check-list of the amphibians and reptiles of Alaska and Canada. Second Edition. Royal Ontario Museum Life Sciences Division, Contributions 53:1-92.

<sup>4</sup>Schmidt, K. P., and D. D. Davis. 1941. Field book of snakes of the United States and Canada. G. H. Putnam's Sons, New York.

<sup>5</sup>Stebbins, R. C. 1966. A field guide to western reptiles and amphibians. Houghton Mifflin Co. Boston.

<sup>6</sup>Wright, A. H., and A. A. Wright. 1957. Handbook of snakes of the United States and Canada. Comstock Publishing Associates, Ithaca, New York.



## RECENT POPULAR TITLES IN THE NATURAL SCIENCES AT SASKATOON PUBLIC LIBRARY

Compiled by DIANE WEIR

The Saskatoon Public Library, like most city and regional libraries, has considerable information on natural history and conservation, most of which is non-technical, designed for general interest. Although some books deal with a specific topic, the treatment as a rule is intended for the layman.

An annotated listing of some of the recent additions to our library in the natural history area follows. Call numbers have been included for the convenience of those able to use Saskatoon Public Library. However, the call numbers may not be exactly the same in other libraries using the Dewey Decimal System. A person who wishes to read any of these books but finds it is not in his regional library, may obtain it on interlibrary loan by giving the librarian the author's name, title and the fact that the book is in the Saskatoon Public Library. The books can also be obtained by Saskatchewan residents from the Provincial Library, Regina, by mail. There is no charge for either of these services.

BARRINGTON, Rupert. *The joys of a garden for your birds*. 1972. How every garden can be turned into a sanctuary for many kinds of wild birds. 598.2073 B27

BROWN, Dolores. *Yukon trophy trail*. 1971. The adventures of the first woman to set foot on many of the big game trails of the Yukon. 799.297121 B87

BRUEMMER, Fred. *Encounters with Arctic animals*. 1972. Superb photographs of Northern landscapes and animals, with an account of the author's experiences while living with the Eskimos. 599.0998 B88

COSTELLO, D. F. *The world of the gull*. 1971. All aspects of the gull's life cycle - courtship and nesting habits, rearing of young, colony formation, food, and migrations. 598.33 C84

COUSTEAU, J. Y. *The whale, might monarch of the sea*. 1972. A beautiful illustrated narrative of the author's encounters with sperm whales in the Pacific and Indian Oceans. 599.5 C86

CURRY-LINDAHL, Kai. *Conservation for survival*. 1972. A programme for the intelligent use of the earth's renewable natural resources. 333.72 C97

CURRY-LINDAHL, Kai. *Let them live*. 1972. A worldwide survey of animals threatened with extinction. 591.042 C97

DAVIDS, R. C. *How to talk to birds and other uncommon ways of enjoying nature year round*. 1972. Unusual ways of enjoying the woods, fields, marshes, and "even your own backyard." 500.9 D27

DURDEN, Kent. *Gifts of an eagle*. 1972. The fascinating story of a golden eagle that spent sixteen years in captivity, giving us swerving loyalty and affection to one man alone. 598.91 D97

FADIMAN, Clifton. *Ecocide*. 1972. Thoughts toward survival by thirteen writers who examine the fundamental causes of a possible solutions to the ecological threat to our world. 301.31 F17



ANCOCK, D. A. *Wild islands*. 1970. A book of short stories and photos designed to stimulate our interest in our outdoor heritage. 591.925 H234

MILLEN, W. J. *Blackwater River*; Toa-thal-as. 1971. The author's entertaining account of his wildlife adventures in British Columbia's great wilderness area. 799.297112 H651

ENNINGS, T. J. *Collecting from nature*. 1971. How to collect, preserve, mount, and display natural specimens. 574.075 J54

ENSEN, A. C. *The cod*. 1972. The uncommon history of a common fish and its impact on American life from Viking times to the present. 639.3758 J54

MACSURNEY, Owen. *Six came flying*. 1972. The story of how the author and his family made friends with a pair of swans and their various broods of cygnets. 598.4 M175

MMANNEY, G. D. *Lost Leviathon*. 1971. A survey of facts about the whale, its relationship with men, and its future, by a member of the team who investigated the "lost Leviathon" of the Antarctic. 599.5 O55

RINGLE, Laurence. *Wild River*. 1972. Colour photos accompany text that illustrates some of the living and non-living features of North American rivers which flow through wilderness. 574.52632 P957

ALCOTT, M. M. *Wild flowers of America* 1963, c.1952. Four hundred flowers in full colour, based on paintings by Mary Vaux Alcott as published by the Smithsonian Institution of Washington. 581.97 W156

ORTH, C. B. *Of mosquitoes, moths and mice*. 1972. An entomologist buys a farm and proceeds to investigate the wildlife he has inherited. 591.9749 W932.

## **RECORDS OF MOOSE MOUNTAIN, SASKATCHEWAN. 1971**

Robert W. Nero and M. Ross Lein.  
Saskatchewan Natural History Society,  
Spec. Publ. 7. 55 pp. Price \$2.00

Moose Mountain in extreme northeastern Saskatchewan stands as an island of forest rising 500 feet above the surrounding grasslands. Actually, it is not a mountain but a group of glacial drift hills covering several hundred square miles. The surface is characterized by a knob and kettle topography, reaching a maximum elevation of 2,725 feet and containing many lakes. The forest is considered part of the aspen

parkland, aspen poplar being the principal tree species. Although coniferous trees do not occur naturally, several kinds of spruces and pines have been planted.

The geographic location of the area and the variety of habitats present provide an interesting region for birds including some breeding species with affinities for the boreal forest. This report lists 210 of the 326 species reported for Saskatchewan. Of these, 173 are species recorded within the 150-square-mile Moose Mountain Provincial Park, including 106 considered to be breeding birds (definite records for 68 species) and 67 to be mainly transients and winter visitants. Also included are 11 other breeding species that nest in close proximity to the park and 26 (not 24 as stated on p. 15) other species that may be expected to occur in the park or for which information is available on their status within 20 miles of the park. Usually included is information on status, abundance, dates noted, and breeding records, if available. A comprehensive review has been made of the published and unpublished reports of many investigators starting with Macoun's work in 1880. Of special note are extracts by Mary Houston and Dr. C. Stuart Houston of bird records from newspaper articles and from field notebooks of two early residents near the park.

The emphasis in this report is on the breeding birds, and most of the information contained is based on 6 weeks of field work from May 4 to June 19, 1965. Unfortunately, the latter part of the nesting season was not covered, and relatively few records are available during migration. Thus, the status and abundance of some species are incomplete and, as the authors point out, other species may be expected to occur in the park.

The various terms used to indicate the status and abundance of species are not given in the introduction; hence, one does not know the range of terms used in the species accounts and the criteria on which they are based. No attempt has been made to define the status of some of the less commonly observed species,



but this is probably wise because more field work will undoubtedly show some or all of these to occur more frequently than the records to date indicate. An observer's report of a nesting of the Little Blue Heron far north of its known breeding range is presented without the authors' interpretation of its reliability. Also, it would have been interesting if the authors had indicated which of the two easily recognized races of the Rufous-sided Towhee breed at Moose Mountain.

The categorization of the Traill's Flycatcher, Least Flycatcher and Rose-breasted Grosbeak as "particular boreal biociation species" seems strange since the flycatchers also commonly frequent deciduous forest edge while the grosbeak is also characteristic of deciduous forest. The authors state that the known breeding range of the Yellow-throated Vireo and Scarlet Tanager nearest to the park is in southeastern Manitoba; however, recent work in North Dakota by Robert Stewart shows that these species breed closer in the Turtle Mountains. This was also suggested earlier by the records of Judd (1917, List of North Dakota birds . . . in the Turtle Mountains . . .). In this regard, a striking similarity exists between the avifauna of Moose Mountain and the Turtle Mountains.

In conclusion, the authors have provided a useful service in summarizing information of the birds of this interesting and distinctive area, and their studies have revealed extensions to the known breeding ranges of a number of species. Undoubtedly, publication of this booklet by the Saskatchewan Natural History Society will advance the knowledge of the area by stimulating the reporting of other records that already exist. In a recent note to the *Blue Jay* (30:133), for example, Gray Partridge was added to the species seen within the park. The list will also direct observers in the future to focus their attention on the more poorly known species — Paul F. Springer, Northern Prairie Wildlife Research Center, Jamestown, North Dakota 58401

## **SPECIAL PLACES — CANADA'S NATIONAL PARKS.**

Published by the National and Historic Parks Branch. IAND Publications No. QS-0281-000-BB-A-1. Simpson Press, Montreal. 72 pp.

Two significant events in the history of National Parks in Canada took place in 1972. The best known was the June 12 announcement by the Honourable Jean Chrétien, Minister of Indian Affairs and Northern Development that the proposed Village Lake Louise Development would not take place as planned. The other, less-noticed, event occurred on February 20, when the establishment of three new parks in the North — Kluane, Nahanni, and Baffin Island — was announced. Although the creation of each new park is important in itself, the significance of this particular event lies in the fact that now, for the first time in Canada's history, each province and territory contains at least one National Park. This little booklet commemorates that achievement.

The book contains an introduction by Mr. Chrétien, a table of contents, 12 pages of colour photographs broken only by a four-page section consisting of two graphs and a map, and a short summary of the history and extent of each park. Every National Park is represented by at least one photograph, and some of the newer parks by many. Additional photographs are of wildlife and plants but these are not labelled as to locale. With minor exceptions, the photographs are pleasing and well produced.

In connection with the preservation aspect, the graphs and map are particularly interesting. A graph plotting years against number of National Parks in Canada shows a tremendous increase in new parks over the last few years. This is further emphasized by reading the summary of each park at the end of the book. However, any elation or optimism generated by this impression is dampened by noting the sharp rise in park use by visitors, and, by noting on the map the vast areas of the country which are without a park. The book, although primarily a picture-book, is



publication contains much food for thought.

As a conservationist, I cannot avoid commenting on the great amount of blank space in the book. The text is given in both English and French, which might be expected in a publication by the Federal Government (although much space per book would be saved by having English and French editions). Less excusable are the three pages occupied by title and publishing information and the many large blanks on the picture pages. This might lead to the question of whether the publication of this book is justified at all. I feel, though I deplore the waste space, that it is justified on the grounds that it marks what is said to be the *beginning* of the National Parks system.

In his introduction, Mr. Chrétien writes, "We are in a race against time. There is still much to be done if we are to truly protect our national heritage." Let us hope that politicians of all political stripes will back up these words with the establishment of many more National Parks in Canada. — *Martin K. Nicholl*, Edmonton.

#### **POPULATIONS, MOVEMENTS and SEASONAL DISTRIBUTION OF MERGANSERS, 1972.**

A. J. Erskine.  
Canadian Wildlife Service Report Series, Number 17. 36 pp. Information Canada, Ottawa. \$1.00.

This publication describes the seasonal fluctuations and movements of Common Mergansers on the Margaree River system of Cape Breton Island and the impact of year-round shooting on their populations and movements.

The program was part of a joint study of the Fisheries Research Board of Canada and the Canadian Wildlife Service to examine the interaction between Common populations and their predation on mergansers.

Earlier studies in Nova Scotia and New Brunswick demonstrated that populations of salmon in their young

stages can increase when merganser predation is sufficiently reduced. The present study was expected to demonstrate that the return of grilse and mature salmon from the sea was also increased by reducing merganser numbers.

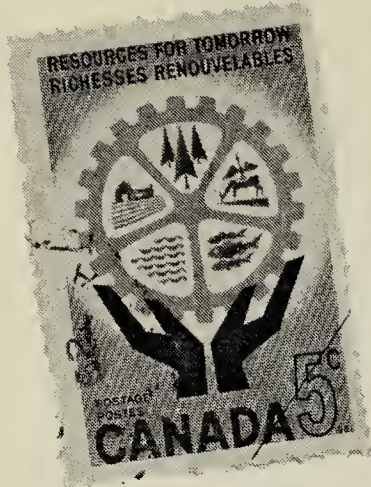
The breeding population of mergansers on the Margaree River system was estimated at 15 pairs of Common Mergansers and 2 pairs of Red-breasted Mergansers from 1957 through 1962. Systematic shooting by a Fisheries Research Board crew reduced this to one or two pairs from 1965-68. Mergansers present during migration and in the winter were also reduced in number. In all, 1,038 mergansers were killed by the shooting crew during the period 1962 to 1968.

I find it difficult to justify programs in which fish-eating mammals and birds are slaughtered to satisfy sport and commercial fishing interests. I find it even more difficult to justify such a program when one considers that foreign fishing interests work off our coasts to deplete our fish stocks with impunity while other agencies distribute toxic chemicals which must have a far greater impact on a fishery than does the lowly merganser.

Nevertheless, I feel that the Canadian Wildlife Service made every attempt to gain as much biological information as possible from the shooting program. Their data demonstrates the sedentary nature of the merganser populations of Cape Breton Island, how easily they can be decimated and the slow and irregular nature of their recovery. — *Phil Ould*, Winnipeg.

**Please take 5 minutes to fill out and return the questionnaire at the end of this "Blue Jay."**





## Letters

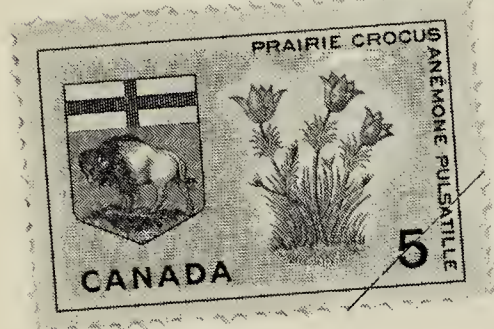
### NATURE ON STAMPS

The first letter is FROM the editor, rather than TO him. I'd like to comment on the stamp that you see — and don't see — on this page. We have tried to illustrate some of the Saskatchewan Natural History Society's interests with the stamps: birds and endangered species (Whooping Crane), mammals (Moose), the Prairie Provinces (grain-field patchwork), conservation of natural resources (Resources for Tomorrow Conference), the North (river, forest and mountain), plants (Prairie Crocus), nature preserves (park), insects and other vertebrates (butterflies), reptiles, amphibians, fish and prehistoric life (dinosaur). B. Millar deserves the credit for helping to select the stamps and for supplying them.

What about the stamps you don't see? Or, What about the three foreign Stamps? It was a real disappointment to find that Canada, with one of the finest park and animal reserve systems in the world, does not have a single stamp, let alone a series, featuring this important aspect of our culture. We found such stamps from the United States, Russia and elsewhere but finally settled on one from Rwanda which, like other so-called "under-developed" African nations, has no development that our "developed" country does not have — grassland parks. And isn't it a shame that Canada, with some of the finest fossil deposits in the world, has never devoted one more than 1,000 postage stamps to its prehistoric animal life! Finally, it was a surprise not only to find that there is such a place as Herm, a half-size nation piece of the Channel Islands, but also that at least one of its 108 stamps depicts insects, including a Monarch Butterfly. A careful search of Canada's postage stamps would suggest that we are an insect-free nation.

People can learn much about a country from its stamps. However, Canada's stamps give the rest of the world a distorted view of our sensitivity to our environment. SNHS and similar societies probably bring about a remedy for this situation. If so, then, within a year or two, we might not have to go around the world for stamps to express Canadian interests in Canada's environment.

Editor





## *CAN'T WHOOPING CRANES BE PROTECTED ON PRIVATE LAND?*

I am writing in regard to the group of three Whooping Cranes that remained in our district from September 26 to October 10, 1972.

For the first few days almost no one heard of them because they were away from a well travelled road, but soon they established their headquarters on a small field next to a grid road. On September 29 an Audubon member, Mr. John Bode of 64 Lloyd Ave., Greenvale, Long Island, New York, arrived by lucky chance and he literally stayed with the birds for 6 days, sleeping in his car each night. He is an artist and photographer and was keenly interested in getting photographs and seeing that no one bothered the birds. On October 4, he had to leave and I, along with other interested neighbors, tried to keep watch but in spite of our efforts thoughtless and curious passers-by would drive into the feeding ground and frighten the birds, some to try to get closer and others to make them fly.

Bob Turner of the Saskatchewan Museum of Natural History spent a couple of days observing the cranes, and a federal game officer from Edmonton watched them for one morning.

One incident which really worried us was a report that two vehicles had driven in and five men with guns were walking towards the birds. At this I phoned the police who said they'd report it but couldn't keep watch all the time. Then I phoned the Conservation Officer who drove out later the same day and saw that the birds had returned. People continued to disturb the birds so I phoned him again and tried to persuade him to put up signs at the entrance to the trail which led into the field. He said he didn't know what to put on such signs, that he didn't believe he had the right to put them up and that only the land owner could object to people entering his field. He said maybe the five men with guns were just hunting other game in the field. I told him that I definitely wasn't so because in all the

time Mr. Bode and myself had watched that field, absolutely no other game birds had landed there. He did send out a young DNR helper to put up signs late the next day. (October 10). Unhappily, someone had been chasing the birds that morning and they had already left the area at about 10 a.m. I do hope they are now safely on their way to their winter home.

I do feel that if our beautiful cranes aren't given more protection than the authorities have given them here, there is no chance of their surviving. I know the territory is large and the game wardens have many duties but why couldn't local interested and dedicated people be given authority to protect the birds? I stopped one car load of people and they were most indignant, although they did as I asked.

I would be grateful if someone could answer these questions:

1. Who is directly responsible for the safety of the cranes while they are here?

2. Is the hunting supposed to carry on as usual, even into the field where cranes are feeding?

3. Can't signs be put up to keep people out of the fields whether or not the owner agrees? (In this case the owner had no objection).

4. What does the term "molesting the birds" mean? I asked the Conservation officer and he said the courts would have to decide that.

I do think more careful guarding is necessary along the migration route. It almost seems a crane has to be shot before any action is taken — and then it is too late. — *Mrs. Edith Gardiner*, Box 159, Kindersley, Sask.

## *TO WALK IN THE WOODS*

The following story is one which I wrote for school. You may find it suitable to make people understand or appreciate our natural surroundings, if you wish, edit it, if not, fine. Here goes:

A walk in the woods can stir your heart in many different ways, depending on the season.



To walk in the woods in spring is to hear the birds singing in the trees, and the flow of fresh, clear, cool water. To walk in the woods in spring is to see the snow leaving right before your eyes; to observe as the buds of trees and sprouts of grass have the slightest tint of green; to taste the air and feel a sense of a new beginning in your heart.

To walk in the woods in summer is to feel alive again; to see the insects, trees, grass, flowers, and all things that exist with you; to hear the rustle as a deer runs close by; to hear the Robin and its young. To walk in the woods in summer is to love what you sense with a warmth received from the sun.

To walk in the woods in fall is to see the earth preparing for a long winter's sleep. The birds are flocking, and the animals that stay are gathering food, for they sense the earth's hibernation, too. Just hear their busy chatter. Listen! Can't you hear the squirrels working their way across the leaf-covered ground? Can't you hear the leaves grumble and the wind rustle, as it throws many more to the ground?

To walk in the woods in winter is to see death, hear silence, and know that the earth is asleep. — *Roberta Smith (Age 14), Endeavour, Sask.*

## THE TWO LITTLE ORPHANS

On one of our field trips, Mr. Lane, Chris Martin and I found a nestbox with two baby Mountain Bluebirds in it. The nest was in bad shape. It was all torn up and the babies were dying of hunger. We went on in the hope of finding a nest of Mountain Bluebirds with babies in it of the same size. We were trying to find foster parents for the two little orphans.

A little way down the road were three nests at the corner. The three of us split up to check the boxes. Chris found a nest with six Eastern Bluebirds, Mr. Lane's box had Tree Swallows and in mine I found six Mountain Bluebirds. This one was just right and we all went back and took the two little birds to the

new nest. Unfortunately, it was too late. When we went back a week later the little birds were not there. They must have died and the parent birds had taken them away. — *Steven McFarlane (Age 9), 243 - 17th Street, Brandon.*

## PRESERVE

### ROAD ALLOWANCES

BY HUGO TIESSEN\*

The use of chemical sprays to destroy the vegetation along road allowances is quite common in many of the Rural Municipalities of Saskatchewan. I am not aware of the scope of this spraying program, but I will relate my experiences in connection with it.

Near Nisbet Provincial Forest, south of Shellbrook, a conservation-minded farmer and I toured several scenic road allowances, some of which were sprayed. The beauty of these trails was quite startling; aspens, willows and several varieties of shrubs grew alongside the faintly marked trails. Those road allowances that were sprayed appeared hideous and sickly. In comparison, the leaves of the trees became brown and curled over.

The intention of the spray was to destroy the trees and shrubs immediately alongside the trail so that farmers could transport their farm equipment over a safe route to their farmland. In this case, the idea of destroying the vegetation for this purpose seemed completely pointless. It was told that adjacent roads provided the farmers adequate access to their land. Besides, it would be impossible to bring wide farm machinery along the trails because the spray did not remove the trunks and branches of the trees and shrubs.

The chemical spray had the effect of damaging an otherwise scenic landscape. Along the road allowance one could see a sharp transition between the healthy vegetation and the heavily sprayed vegetation.

While driving throughout Saskatchewan one can see many road allowances.

\*2604 Cascade St., Saskatoon.





in a natural state except for two ruts in the center. In many instances, the vegetation on either side of the trail has been unaltered by man. Although road allowances are only 99 feet wide, they often play an important role in providing a habitat for insects, birds and small mammals.

Rather than be destructive and waste a great amount of money destroying the countryside, municipalities should attempt to preserve these trails. Often the road allowance is the last remaining area of natural vegetation, as the remainder of the land has yielded to the plow and is used for agricultural purposes. I suggest that each municipality should attempt to preserve at least 10 per cent of road allowance which have scenic qualities — flowers, grass, bushes and trees. This would prevent the use of chemical sprays and road-building equipment from destroying trails designated for this purpose. This should be possible because many of these trails are located in remote areas of the municipality and, consequently, there would be little pressure to improve them.

The need to preserve these trails is obvious. Although the program would be small in stature, it would be another method of attempting to preserve scenic areas in our landscape from wanton

destruction. Such areas would provide an ideal place where people could go for a quiet walk in the countryside to enjoy the splendour of nature.

## **GREATER PRAIRIE CHICKEN**

### **AT LEADER, SASKATCHEWAN**

BY DAVID R. M. HATCH\*

At noon on November 3, 1972, as I was eating dinner in a cafe in Leader, Saskatchewan, I overheard three American hunters discussing a grouse they could not identify and had shot earlier that day. I asked to see the bird and they showed it to me. It proved to be a Greater Prairie Chicken. The bird, an adult male, had a short, rounded tail, which consisted of 18 rectrices that were deep brown in colour and tipped by white. With the exception of the primaries, secondaries, tail and neck-feathers (pinnae), nearly all the other feathers were barred by white and brown in equal proportions. On each side of the neck was a set of elongated, rigid, pointed feathers. These pinnae were dark brown and each covered a patch of bare orange skin. Above the eye

\*Manitoba Museum of Man and Nature,  
190 Rupert Avenue,  
Winnipeg, Manitoba R3B 0N2.



was a much smaller patch of bare orange skin. This bird showed no hybrid characteristics.

Besides the Greater Prairie Chicken, these hunters had seven Sharp-tailed Grouse in their possession. The Prairie Chicken was midway in size between the largest and the smallest of these Sharp-tailed Grouse. The hunters had seen no other grouse of this type during the day and this particular Prairie Chicken was a lone bird flushed from a small bluff. The hunters claimed to have shot the Prairie Chicken 10 miles due east of Leader; however, when I showed them that location on a detailed topographical map they were a little vague in confirming it.

I tried unsuccessfully to get the hunters to give the Prairie Chicken to me so it could be presented to the Saskatchewan Museum of Natural History as a study skin. Upon discovering the significance of their kill they decided to keep the bird and have it mounted.

This is the first time in at least 20 years that a Prairie Chicken taken in Saskatchewan has been examined in the hand. This record lends further support to a recent well documented sighting of a Greater Prairie Chicken near Mortlach, Saskatchewan, reported by Frank Brazier in the September, 1972, *Blue Jay*.



Prairie Chicken

Fred Lahrman

## OWL Notes

BY EVELYN CASSON\*

Last winter my sister and her husband did not return to the farm until April. They were surprised to find that, in spite of the fact that the rabbits were so plentiful around the countryside, their fruit trees and bushes had not been harmed. This seemed strange as so many people had lost fruit trees and raspberry canes from the ravages of rabbits. It didn't take them long, however, to discover the reason. High up in a large spruce tree, about 10 feet from a bedroom window, they discovered a Great Horned Owl nesting.

The female was a large owl of a dark gray colour touched with white here and there, with an under coat of buff showing through. Her "horns" were large, prominent tufts. The male was a beautiful golden owl, large, but not quite so large as the female.

Day after day we watched with great interest as the owls incubated the eggs in the sloppy, carelessly built nest, which looked as if it would collapse in the first strong wind. We did not climb up to see how many eggs there were for obvious reasons; but finally one day our patience was rewarded! We discovered two fluffy white heads peeping out of the nest.

When the nestlings were only a few days old, a big wind and rain storm came up. The next morning, when we looked out, there appeared to be a big white rabbit fur on the ground under the tree. On further investigation we found "the fur" to be one of the nestlings which must have blown out of the nest during the storm and died.

This left only one little one. The next few days later, much to our consternation, we discovered the other little owl on the ground, but apparently unharmed. Covered with a soft, white fluff he was about as big as a half-grown chicken. The large yellow eyes stared with deep distrust, and the sharp, strong claws and beak (which he knew how to use if one was foolish enough to come too near) were evident.

\*Medstead, Saskatchewan



For the first few weeks on the ground we seemed to think that the tree was his own special one, for he snuggled up to it and did not move very far from it. Each morning about 5 o'clock the parents would be on hand with breakfast. The mother carried the food, nearly always a rabbit, to the foot of the tree and would begin tearing it into pieces and literally jamming it into her baby while the father kept guard from the house or tree top.

What huge meals the baby ate and how he grew! After the meal was finished the mother would clear the rubbish away and leave her baby on his own. He would preen his feathers and tidy up, baby that he was, and then would sleep and yawn, sleep and yawn the day away.

Toward evening he would start to get restless and start calling. The sound he made was not a hoot but a sort of a bark that sounded for all the world like, "Wha-a-t!" Finally about dusk his mother would arrive and serve another huge meal.

In a few weeks baby owl was almost the size of a full-grown chicken, and was covered with grey and white feathers. He could fluff out his feathers to make himself look big and fierce when anyone came near and snap his beak and hiss at any intruder. Nearby, the parents, hidden from sight, would send out warning calls — a sort of barking sound — two barks and then a snapping of their strong, cruel beaks.

About this time the baby owl began walking around. He would toddle off on his two unsteady, feathery legs, stumbling along among the tall grass and weeds for all the world like a fat, little baby. One day you would find him out in the field across the road, another time way over under the trees in the poplar bluff. Although you did not always see the mother, you knew by her calls that she was keeping careful watch. By this time the father must have gone for there had been no sign of him for many days.

Finally, when the baby owl was about a month old and beginning to look quite grown-up, we missed him. We hunted and hunted and were about to give up

when we suddenly came upon him up in a tree about 10 feet from the ground. He had crept up a little dead tree that was slanted over and touching his nest tree and there he perched, by turns sleeping, yawning and preening his feathers. At this point he spent much time exercising his big, strong wings. He would stretch them out to their fullest length and then flap them vigorously, all the while stretching up onto his tiptoes.

A few days later we found him perched on an old wagon gear. He watched our approach, staring unblinkingly with his huge golden eyes until we were within about 5 feet of him. Suddenly he stretched up on tiptoes and, spreading his wings, swept away into the woods as silently as a shadow.

When two months old and apparently full grown he would often sit around the dugout on a post, preening his feathers or sleeping, but when night came he would begin his hoarse barking call. Since he did not seem to be fed any longer by his mother, he must have been catching his own food.

One night we began to hear the young owl continually calling "Wha-a-a-t, Wha-a-at" and then become quiet as if he were listening for an answer. Finally off in the woods, across the road, there came a deep "Whoo! Whoo!" and with what seemed to us a note of pure joy he called "Wha-a-t! Wha-a-t! Wha-a-t!" and sped away toward the sound like a silent grey streak.

## **FIRST REPORT OF A GOLDEN-CROWNED SPARROW AT CALGARY, ALBERTA**

BY HAROLD W. PINEL\* and  
CAROL J. ROBINSON\*\*

On October 12 and 13, 1972, we observed a Golden-crowned Sparrow at the Inglewood Bird Sanctuary at Calgary. It was first noticed at 1:50 p.m. on October 12 at a feeding station in the company of a single White-throated Sparrow. At 12:45 p.m. on Oc-

\*1017-19th Ave., N.W., Calgary, Alberta.

\*\*Group Box 3, 9th Ave. and 22nd St., S.E., Calgary, Alberta.



tober 13, the sparrow was seen again at the feeder, this time in the company of about 40 House Sparrows, a Black-billed Magpie and a female Ring-necked Pheasant. The Golden-crowned Sparrow was observed at intervals throughout the rest of the afternoon on October 13, either at the feeder or in adjacent shrubbery.

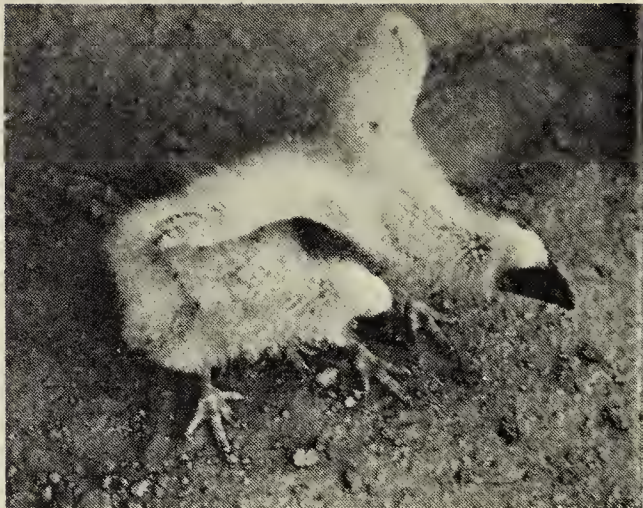
The standard field guides were used to identify the sparrow.<sup>2 3</sup> The distinctive pattern and colours of the crown were noted: briefly, the crown was brown with the forecrown being a dull yellow color, making the bird an immature or a winter adult. The second winter plumage as depicted in one book is a close representation of the bird seen by us.<sup>3</sup> Other features noted were two white wing bars, a dusky bill and a faintly barred chest.

This appears to be the first record for the Calgary area and the second known record away from the mountains in Alberta.<sup>4</sup> The other non-montane report is by M. Cole of Red Deer who observed three Golden-crowned Sparrows at her feeding station in October, 1939.<sup>1</sup> Associated with the Golden-crowned Sparrows were Slate-colored Juncos, a small flock of Oregon Juncos, a few Song Sparrows, and about 12 White-crowned Sparrows and House Sparrows.

<sup>1</sup>Cole, M. P. 1941. Bird visitors at Red Deer, Alberta. Can. Field-Nat. 55:5.  
<sup>2</sup>Peterson, R. T. 1969. A field guide to western birds. Houghton Mifflin Company, Boston.  
<sup>3</sup>Robbins, C. S., B. Bruun, H. Zim and A. Singer. 1966. Birds of North America. Golden Press, New York.  
<sup>4</sup>Salt, W. R., and A. L. Wilk. 1966. The birds of Alberta. Gov't of Alberta, Dept. of Ind. and Devel. Queen's Printer, Edmonton.

**Ever seen a bluejay questionnaire?**

**Check the first and last pages of this issue.**



Young Turkey Vultures  
 July 16, 1972  
 C. S. Houston

**CAVE-NESTING  
 TURKEY VULTURES  
 OF THE SOUTH SASKATCHEWAN**

BY JOE W. SCHMIDT\*

One weekend at the end of May 1972, I was driving my dune-bug along the South Saskatchewan river valley in the Lancer area. Since an adult Turkey Vulture had been spotted by Gordie Johnson the week before, two of us, with Ian Harnett and Carl Fuller, looked for a suitable nesting site. We found a large cave in the river cliff and, as we approached, the female was flying out. Two eggs were being incubated about 4 feet in from the cave mouth. This was not only the first nest but the first vulture I had ever seen. This was quite an experience for me.

Dr. Stuart Houston had told me on one of our trips a few years ago, that vultures had been sighted along the river valley, but he had never seen a nest personally. We returned with Dr. Houston on June 18 to find the eggs had not hatched. On our final visit on July 1, he banded the two young, adding a new species to his banding list.

NOTE: Frank Martens of Spiritwood and Conservation Officer Les Arndt found an occupied Turkey Vulture nest on an island at Chitek Lake in 1970. It was a burrow about 10 inches in diameter on a 60-degree-south bank near the shore. Adult vultures had been seen around the island for two summers previously — S. D. Riome. (Previous Saskatchewan nesting records of 1969 were summarized in the *Blue Jay* 27 — Ed.)

\*3456 Caen St., Saskatoon



## SIGHT RECORD OF THE FERRUGINOUS HAWK BRITISH COLUMBIA

BY PETER L. McLAREN and  
MARGARET A. McLAREN\*

The Ferruginous Hawk is an uncommon raptor of the plains of North America. The breeding range of the species extends south from eastern Washington, southern Alberta, southern Saskatchewan and southwestern Manitoba.<sup>1</sup> Its status in British Columbia is hypothetical, based on several sight records at Osoyoos in 1922 and another at Sumas in 1866.<sup>2</sup>

At 9:30 a.m. on August 12, 1972, while driving along the trans-Canada highway in Yoho National Park, we observed an adult male Ferruginous Hawk soaring overhead at the western tip of Yapta Lake, about 9 miles from the eastern boundary of the park. We watched the bird for about 15 minutes with the aid of 7 x 35 binoculars, at distances as little as 30 feet. The sky was cloudless and the sun was directly at our backs. During the course of its circlings we were provided with excellent views of both the ventral and dorsal portions of the body and we noted all the key identification points for this species: the whitish tail, the dark V formed by the feathers of the legs, the rufous elbows and the dorsal wing windows.

The sighting of this bird represents the first record of the species for Yoho National Park (D. H. MacMillan, Park Mgt., pers. comm.). Its presence in the Canadian Rockies is not unknown, the species having the status of a rare visitor to both Banff and Jasper National Parks. It is possible that these appearances in the mountains are the results of post-breeding wanderings by members of the breeding population in southern Alberta.

own, L., and A. Amadon. 1968. Eagles, Hawks and Falcons of the World. 2 vol. (945 pp.). McGraw-Hill, New York.

unro, J. A., and I. McT. Cowan. 1947. A Review of the Bird Fauna of British Columbia. 285 pp. British Columbia Provincial Museum Special Publication No. 2.

oyal Ontario Museum and Department of Biology, University of Toronto, Toronto, Ontario

## A RECENT BLACK-FOOTED FERRET RECORD FOR SOUTHERN ALBERTA

BY HAROLD W. PINEL\*

On the morning of August 9, 1972, my wife, my brother-in-law and I left Elkwater in the Cypress Hills to go bird-watching in the Manyberries-Pakowki Lake area of southeastern Alberta. At 1:20 p.m., we reached the west end of Pakowki Lake some 7 miles south of the nearest town, Etzikom. At 1:30 p.m., my brother-in-law discovered the carcass of a mammal about 4 feet above the ground on the top of a concrete piling supporting the bridge which crosses over the lake. After close scrutiny of the carcass, I identified it as that of the rare Black-footed Ferret. To confirm the identification, I walked back to the car to get *The Mammals of Alberta*.<sup>2</sup> *The identification was verified.*

The long slim body, the stubby muzzle, the black-tipped tail, the black feet and legs, and the diagnostic black face mask were all noted. The dental formula was even checked and turned out to be  $\frac{3-1-3-1}{3-1-3-2} = 34$  which is

characteristic of some members of the weasel family, the Black-footed Ferret being one. The death was not recent because pelage was lacking in the throat, neck, chest, and flank regions, and because part of a pigeon nest containing two eggs was situated on the lower back and upper legs region of the body. I couldn't determine the cause of death.

There are few records of the Black-footed Ferret in Alberta. J. D. Soper states "Seton . . . refers to a specimen from Calgary recorded in D. G. Elliot's *Catalogue of Mammals of the Field Museum*, 1907, p. 448. Anderson (1946) mentions a specimen collected in 1907 on the Blackfoot Reserve, near Gleichen, and another at Rosebud. Since that time extensive field work by field-naturalists in southern Alberta has apparently failed to detect further occurrences." Since 1964, however, there has been another sighting of the Black-

\*1017-19 Ave. N. W.,  
Calgary, Alberta.



footed Ferret in Alberta besides that made by me. At 4:30 p.m. on September 13, 1967, Dr. M. Skirrow clearly observed a Black-footed Ferret running across the road one mile north of Connemara which is approximately 40 miles south of Calgary (Calgary Field Naturalists' Society records). In adjacent south-western Saskatchewan, the Black-footed Ferret has been recorded in the past from 15 different localities.<sup>1</sup>

Based on the fact that the main food supply of the Black-footed Ferret is the prairie dog, a species which has not been definitely recorded for Alberta, and the fact that so few records exist for the ferret in southern Alberta, I agree with Soper (1964) in concluding that the few occurrences should be regarded as purely extralimital.

Ed Note: We hope that the specimen was collected and deposited in a museum. This should be done with any rare or endangered species found dead. Even the skeleton or a part of it is worth preserving. If the animal is too big or it is otherwise impractical to pick it up immediately, the nearest wildlife official should be notified.

<sup>1</sup>Beck, W. H. 1958, *A Guide to Saskatchewan Mammals*, Spec. Publ. No. 1, Sask. Nat. Hist. Soc., Regina.

<sup>2</sup>Soper, J. D. 1964. *The Mammals of Alberta*. Gov't of Alberta, Dept. Ind. and Devel., Queen's Printer, Edmonton.

## DOMESTIC CAT CATCHES A VARIETY OF WILDLIFE

BY DENNIS C. JOYES\*

(NOTE: This article from outside our usual area is included in hopes of encouraging people from the Prairies and North to let us know about their observations on the food of domestic cats. Ed.)

A domestic cat recently arrived at our ranch and gave birth to a litter of kittens. The cat was apparently accustomed to living in the wild for she was extremely wary and preferred to hunt in the surrounding fields and pastures.

\*Westby, Montana

When I first saw her she was feeding on a road-killed Whitetail Jackrabbit. Later she was seen bringing in young jackrabbits, deer mice and shrews but her favorite hunting ground was a colony of Richardson's Ground Squirrels. I once counted nine freshly killed ground squirrels in the old barn where she had her kittens.

Not content with only gophers she once caught a full grown Pintail possibly while the duck was on its nest. Small birds were also hunted especially House Sparrows, Western Kingbirds and Brewer's Blackbirds which are abundant around ranch shelterbelts and corrals. The nests of House Sparrows were often accessible and once located were usually raided until empty.

The cat was once seen eating a Smooth Green Snake but she avoided frogs and salamanders. The only insects I observed being eaten were black crickets.

It did not occur to me at the time to attempt to enumerate the prey brought in by "Mama," as the cat came to be called, but she did provide a random sample of the species hunted by domestic cats on the prairies. Similar food habits have been recorded for cats in Oklahoma, California and Texas although with local rather than northern Plains species represented.<sup>3 2 4</sup> Instances of cats preying on ducks, however, are not well known and have been confirmed, so far as I know, only by E. L. Hubbs.<sup>2</sup> Ducks eaten in Texas samples were thought to have been carrion or garbage.<sup>1</sup>

<sup>1</sup>Eberhard, Thomas. 1954. Food Habits of Pennsylvania House Cats. *J. Wildl. Manage.* 18: 286.

<sup>2</sup>Hubbs, E. L. 1951. Food Habits of Feral House Cats in the Sacramento Valley. *California Fish and Game* 37: 177-189.

<sup>3</sup>McMurray, F. B. and C. C. Sperry. 1941. Food of Feral House Cats in Oklahoma, A Progress Report. *J. of Mammalogy* 22: 185-190.

<sup>4</sup>Parmalee, P. W. 1953. Food Habits of the House Cat in East-Central Texas. *J. Wildl. Manage.* 17: 375-376.



## VARIATIONS IN

## FIREWEED and BLUEBERRY

BY MRS. H. D. BOBIER\*

For many years there has been a patch of white Fireweed growing by a roadside in Rapid View, Saskatchewan. The purple variety grows beside it but there does not seem to be any cross-pollination as the white flowers never have a trace of pink or mauve. The leaves and stems are also a brighter green. This variety apparently does not seed readily as there are never more than a few specimens each year.

Last August while berry-picking near the Beaver River, I came across a small patch of "black" Canada or Velvetleaf blueberries the most common species found in Saskatchewan. As far as I could see, there was no difference except the color. This was partly due to a lack of "bloom." The black berries were not as tart as the blue ones. Next spring I am going back to see if the flowers are different.

Rapid View, Sask.

## 30 Years Ago

### THE SNOWS OF YESTERYEAR

Thirty years ago the first Christmas bird censuses were reported in the *Blue Jay*, from Nipawin, Saltcoats, Scott, Echo, Skull Creek, Tullis and Yorkton, and Maurice G. Street's comment was noted as expressing the general enthusiasm for the new project: "This is the first time I have ever taken a Christmas bird census, and I was quite surprised at the number of species and individuals seen when all totalled up." Maurice's own count at Nipawin on December 26, 1942, covering an area of Bruce muskegs and jackpine ridges along the Saskatchewan River, produced 18 of the total of 30 species recorded for the province: Goshawk, 1; Bruce Grouse, 1; Ruffed Grouse, 2; Willow Ptarmigan, 9; Great Horned

Owl, 3; Hairy Woodpecker, 2; Downy Woodpecker, 3; Canada Jay (as it was known then), 7; Blue Jay, 11; Magpie, 4; Black-capped Chickadee, 23; Hudsonian Chickadee, 9; Golden-crowned Kinglet, 5 (with the Editor's terse comment "no details" suggesting that this was then regarded as an unusual winter record); Bohemian Waxwing, 28; English Sparrow, 43; Evening Grosbeak, 14; Pine Grosbeak, 8; Redpoll, 271.

The *Blue Jay* in which these first counts appeared (January-March, 1943) was the second number of the first issue. The first number of this mimeographed newsletter had appeared at the end of 1942 as the "official bulletin of the Yorkton Natural History Society," having as its object "to foster an active interest in all branches of nature study, and to promote the conservation of all wild life; also to act as a connecting link between nature lovers in Saskatchewan."

In the first number the Editor, Mrs. I. M. Priestly, had explained about the Christmas Bird Census sponsored by the Audubon Society. "In Saskatchewan," she conceded, "the climate at that season of the year makes it rather difficult to comply with all regulations, one of which requires observers to be in the field for at least six hours. However, a provincial bird count of our own would be most interesting." Counters were then promised that their results would be published in the next *Blue Jay*, and the annual Saskatchewan Christmas Bird Count was born.

**Beefs or bouquets  
about the "Blue Jay"?**

**Use the form at the front or back  
of this issue to let us know.**



## LOOKING BACK

An editor's first issue has to be his most frightening and disorganized — I hope. First of all, 64-page issue of the *Blue-Jay* requires more than 100 pages of double-spaced typed material and photographs. Where was it all going to come from in less than two months? That by itself seemed enough to worry about but when I looked through some 22 other amateur bird and natural history magazines in Canada and the United States. I found that the *Blue Jay* had practically no competition in terms of caliber, variety and number of articles and professional appearance. If there were an international award for such journals, I had no doubt that the *Blue Jay* would have richly deserved it. So now, not only to fill the March issue but also the responsibility of maintaining the high standards set by Dr. Ledingham. The items did come in and in the end, we sent more material to the printer than could be used in this issue.

We have made a few changes and, if some of these detract from the quality of the *Blue Jay*, we can only hope that others compensate. First of all, Midwest Litho, with a very helpful and patient staff, became our printers again and this automatically meant new type faces. We have also enlarged the editorial staff and without their help this issue would not have been published on schedule. Among other modifications, we have largely dropped scientific names and attempted to make references to other literature less distracting in the text. To accomplish these two changes, we modified many of our contributors' manuscripts without consulting them — because of a shortage of time. To those who may rightfully resent unauthorized changes, I offer my apologies.

My most heartening experience in compiling this issue involved the article on prehistoric bears by Dr. C. R. Harington, Curator of Quaternary Zoology, National Museums of Canada. I was able to get very little out of several paragraphs in the first version of his paper because of technical terms. Having no other article on paleontology for this issue, it was with many misgivings that I returned a heavily marked manuscript and asked for a revision that the naturalist-on-the-street might appreciate. Two weeks later I received a new manuscript as well as the drawing that adorns our front cover. To an editor, happiness is that kind of cooperation.

In this connection, I feel that the *Blue Jay* should contain material that the amateur naturalist, whether housewife, salesman, farmer or junior member, can read and come away with a better appreciation of that aspect of his or her environment. At the same time, we want the *Blue Jay* to continue to be interesting and useful to professional biologists. We need articles by these specialists and we want articles in their fields of endeavour but we have to have them written in such a way that an interested person with little or no background can understand them. That, I think, is one of the most important functions of the *Blue Jay*.

Going back to scientific names, they interfere with the reading of a sentence and are probably useless to most of our readers. Nevertheless, because they are more universally recognized than common names, scientific names are used to ensure that anyone anywhere can know what species is being discussed. Deleting scientific names, therefore, would require that we standardize common names. For this issue we have used the common names found in the Peterson Field Guide Series. Anyone having any doubts about what plant or animal is meant, can find a description of it and its scientific name in a volume from that series. The guides are incomplete for our area and so other references would be needed. And we will have to continue using some scientific names.

We can assure those who disagree with our innovations that none of them is irrevocable. We welcome your opinions on the *Blue Jay* and have enclosed a questionnaire in this issue to encourage you to let us know what you want to see and how you want to see it in your journal.

— The Editor



## YOUR THREE DOLLARS' WORTH

Are YOU getting as many articles of the kinds YOU are interested in, written the way YOU want them, in the *Blue Jay*? Do YOU see any way the *Blue Jay* might be improved? We would like YOU to let us know by answering the questions on the back of this page and by adding any comments and suggestions YOU may have. Please note that the emphasis in this paragraph is on YOU — the person reading this page. Don't assume that your opinion isn't important or that we will get enough answers without your bothering to reply. We will very much appreciate your taking the trouble to complete and return this questionnaire.

Another way to give you more for your \$3.00 is to get more members for the Saskatchewan Natural History Society. A larger membership will help the Society to become a more effective voice in informing the public about nature and to perform a more influential role in guiding the conservation of our natural resources. One way to attract more members is to produce a *Blue Jay* that appeals to more people. Therefore, we also need opinions and ideas from naturalists who have never subscribed to the *Blue Jay*, who may not even know it exists, and from those who no longer belong to the Society. In attempting to locate such people, we are again asking for help from our current readers. There are two copies of the questionnaire in this issue. After you have filled out the first copy, please make a special effort to find someone to give the second copy to — just one other person in your area, club, church or school whom you think might be interested in natural history or conservation but does not receive the *Blue Jay*. Believe it or not, there are 254 communities in the Prairie Provinces that get only one *Blue Jay* and many, many more that get none. Don't forget to take along one or two issues when you enquire. (If you cannot find someone outside your family to complete the second copy, please ask another family member to do so.)

We would particularly appreciate it if teachers and librarians in schools receiving the *Blue Jay* would encourage interested students to give us their views. (Additional copies of the survey are available from the editor.)

Please return the completed questionnaire by APRIL 2, 1973, to the editor, 2202 Park Ave., Saskatoon, Sask., S7J 1J1. Your name is not needed on the completed form.

Thank you for your cooperation.

BERNARD GOLLOP, Editor.

If the person you contact wants to become a member, he or she (or you) need only send their name and address with \$3.00 to The Treasurer, Box 1321, Regina, Sask.

### Additional Comments



# BLUE JAY QUESTIONNAIRE

1. Are you or someone in your household receiving the *Blue Jay* in 1973: YES ☐ NO ☐

2. Please check the subjects below that you want to read more about in the *Blue Jay*:

|                          | Life<br>history,<br>ecology | Local<br>lists | Iden-<br>tifi-<br>cation |            | Life<br>history,<br>ecology | Local<br>lists | Iden-<br>tifi-<br>cation |
|--------------------------|-----------------------------|----------------|--------------------------|------------|-----------------------------|----------------|--------------------------|
| FLOWERS, TREES           | _____                       | _____          | _____                    | AMPHIBIANS | _____                       | _____          | _____                    |
| LOWER PLANTS             | _____                       | _____          | _____                    | REPTILES   | _____                       | _____          | _____                    |
| BUTTERFLIES              | _____                       | _____          | _____                    | FISH       | _____                       | _____          | _____                    |
| OTHER INSECTS            | _____                       | _____          | _____                    | BIRDS      | _____                       | _____          | _____                    |
| OTHER INVER-<br>TEBRATES | _____                       | _____          | _____                    | MAMMALS    | _____                       | _____          | _____                    |

GEOLOGY \_\_\_\_\_ PALEONTOLOGY \_\_\_\_\_ ASTRONOMY \_\_\_\_\_

PHOTOGRAPHY \_\_\_\_\_ CONSERVATION \_\_\_\_\_

ENVIRONMENTAL PROBLEMS \_\_\_\_\_ OTHER \_\_\_\_\_

3. Which three articles did you like most of the last one or two issues of the *Blue Jay* and why?

a) Title \_\_\_\_\_

Why? \_\_\_\_\_

b) Title \_\_\_\_\_

Why? \_\_\_\_\_

c) Title \_\_\_\_\_

Why? \_\_\_\_\_

4. So that we may better appreciate who our readers, present and potential, are, will you please tell us your

OCCUPATION \_\_\_\_\_ AGE \_\_\_\_\_

WHERE YOU LIVE (place and province) \_\_\_\_\_

5. What comments, suggestions, praise and criticism do you have about the *Blue Jay*? (use back of page)

Thank you very much again for your cooperation. Please try to get another person to fill out the the other copy of the questionnaire — by APRIL 2, 1973.













## SASKATCHEWAN NATURAL HISTORY SOCIETY

P.O. Box 1321, REGINA, SASKATCHEWAN, S4P 3B8

### BOARD OF DIRECTORS (October 1972 to October 1973)

|                         |  |
|-------------------------|--|
| Honorary President      | Betty Cruickshank, 2329 Athol St., Regina, S4T 3G4     |
| President               | J. A. Wedgwood, 610 Leslie Ave., Saskatoon, S7H 2Z2    |
| Past President          | Gordon Silversides, 1201 Grace St., Moose Jaw, S6H 3C6 |
| First Vice-President    | Margaret Belcher, 2601 Winnipeg St., Regina, S4P 1H8   |
| Second Vice-President   | Gary Seib, 2234 Angus St., Regina, S4T 2A2             |
| Treasurer               | George R. Dodd, 33 Malone Crescent, Regina, S4S 5R1    |
| Corresponding Secretary | Molly Denson, 1221 Osler St., Saskatoon, S7N 0T8       |
| Recording Secretary     | N. O. Nielsen, 327 Poplar Crescent, Saskatoon, S7M 0A8 |

### REPRESENTATIVES AT LARGE:

Harvey Beck, 137 210-86th Ave. S.E. Calgary, Alta. T2H 1N6; Doug Gilroy, R.R. No. 2, Regina, S4P 2Z2; Sharon Haggerty, 89 Westfield Drive, Regina, S4S 2S5; Donald Hayward, P.O. Box 389, Wolseley, S0G 5H0; Patricia Kern, 1053 Chestnut Ave., Moose Jaw, S6H 1A7; Herb Moulding, 90 Dunning Crescent, Regina, S4S 3W1; Lloyd Peterson, P.O. Box 866, Indian Head, S0G 2K0; Christine Pike, P.O. Box 117, Waseca, S0M 3A0 Stan Riome, P.O. Box 2103, Nipawin, S0E 1E0; Wayne Renaud, P.O. Box 327, Rosetown, S0L 2V0; Spencer Sealy, Dept. of Zoology, University of Manitoba, Winnipeg, Man., R3T 2O2; Charles Sulver, P.O. Box 151, Lafleche, S0H 2K0.

### RESIDENTS OF LOCAL NATURAL HISTORY SOCIETIES:

Mrs. Mary Skinner, P.O. Box 777, Indian Head, S0G 2K0; Mrs. D. Bromley, Maple Creek, S0N 1N0; Mrs. Leith Knight, 843 Elgin Ave., Moose Jaw, S6H 4G6; Omar Aschim, R.R. No. 1, Suite 17, Box 21, Prince Albert, S6V 5R3; Gary Seib, 2234 Angus St., Regina, S4T 2A2; Lynn Oliphant, 330 Saskatchewan Cres. W., Saskatoon, S7M 0A4; Dr. Jan Looman, 491 2nd Ave., S.E. Swift Current, S9H 3J7; William Popowich, Yorkton.

### APPOINTED DIRECTORS:

Blue Jay Archives, Gary Seib, 2234 Angus St., Regina, S4T 2A2; Blue Jay Bookshop, Frank Brazier, 2657 Cameron St., Regina, S4T 2W5; Circulation, Lorne Scott, Saskatchewan Museum of Natural History, Regina, Conservation, Thomas White, 2580 Retallack St., Regina, S4T 2L4; Editor of Newsletter: William and Joyce Anaka, P.O. Box 211, Yorkton, S0N 2V8; Publicity, Rose McLaughlin, P.O. Box 369, Indian Head, S0G 2K0; Gordon Crowne, 120 Acadia Drive, Saskatoon, S7H 3V1; Special Publications, C. Stuart Houston, 863 University Drive, Saskatoon, S7N 0J8; Supervisor of Services, James R. Jowsey, 2635 Nineteenth Ave., Regina, S4T 1X2.

## SUBSCRIPTIONS-MEMBERSHIPS

The classes of memberships in the SNHS are as follows: *Regular*, \$3.00; *Supporting* \$5.00; *Sustaining* \$10.00. Supporting and sustaining memberships include the regular membership fee as a donation for which a receipt is available for income tax purposes, upon request. Bulk orders (minimum of five to one address) are available to junior club members and to educational institutions at the rate of \$3.00 for the first subscription and \$1.00 for each additional one.

Send all renewals and new memberships to THE TREASURER, SNHS, Box 1321, Regina, Saskatchewan. (Note: Bookshop orders should be sent to Box 1121).



Second class mail registration number 1046.  
Please return unclaimed copies.  
Return postage guaranteed.

Prof. W. A. S. Sayiant

Room 105/2

Geological Sciences

Gen. Purpose Bldg.

U. of S.

Saskatoon,  
Sask.



Published quarterly by the  
**SASKATCHEWAN NATURAL  
HISTORY SOCIETY**  
Regina, Saskatchewan.







